



VARIODYN® D1 System VARIODYN® D1 Comprio

GB Commissioning Instruction

798664.GB0
04.2020

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.

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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.

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1 General / Application

These instructions contain all important information for the commissioning of VARIODYN® D1 and VARIODYN® D1 Comprio systems with the programming software Designer D1. Additional information about the VARIODYN® D1 and accessories can be found in the product group catalogue as well as in the Internet at www.variodyn-D1.com bzw. www.hls-austria.com.

1.1 Associated Documents

These commissioning instructions for qualified technicians contain all fundamental information for the commissioning of VARIODYN® D1 systems and many differ from the respective building-specific installation. Additional information on operation, installation and configuration can be found in the following documentation:

Part No.	Name
798661.GB0	Planning Principles Voice Alarm Systems
798662.GB0	Operating Instruction VARIODYN® D1 System
798663.GB0	Installation Instruction VARIODYN® D1 System
798666.GB0	Operating Instruction VARIODYN® D1 Comprio
798667.GB0	Installation Instruction VARIODYN® D1 Comprio
798678.GB0	Commissioning Instruction VARIODYN® D1 Networking
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 commissioning. Updated information and conformity declarations are available for reference on www.variodyn-D1.com bzw. www.hls-austria.com.

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Upon commissioning of the installed and configured system, every call station, 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”!

2 System overview

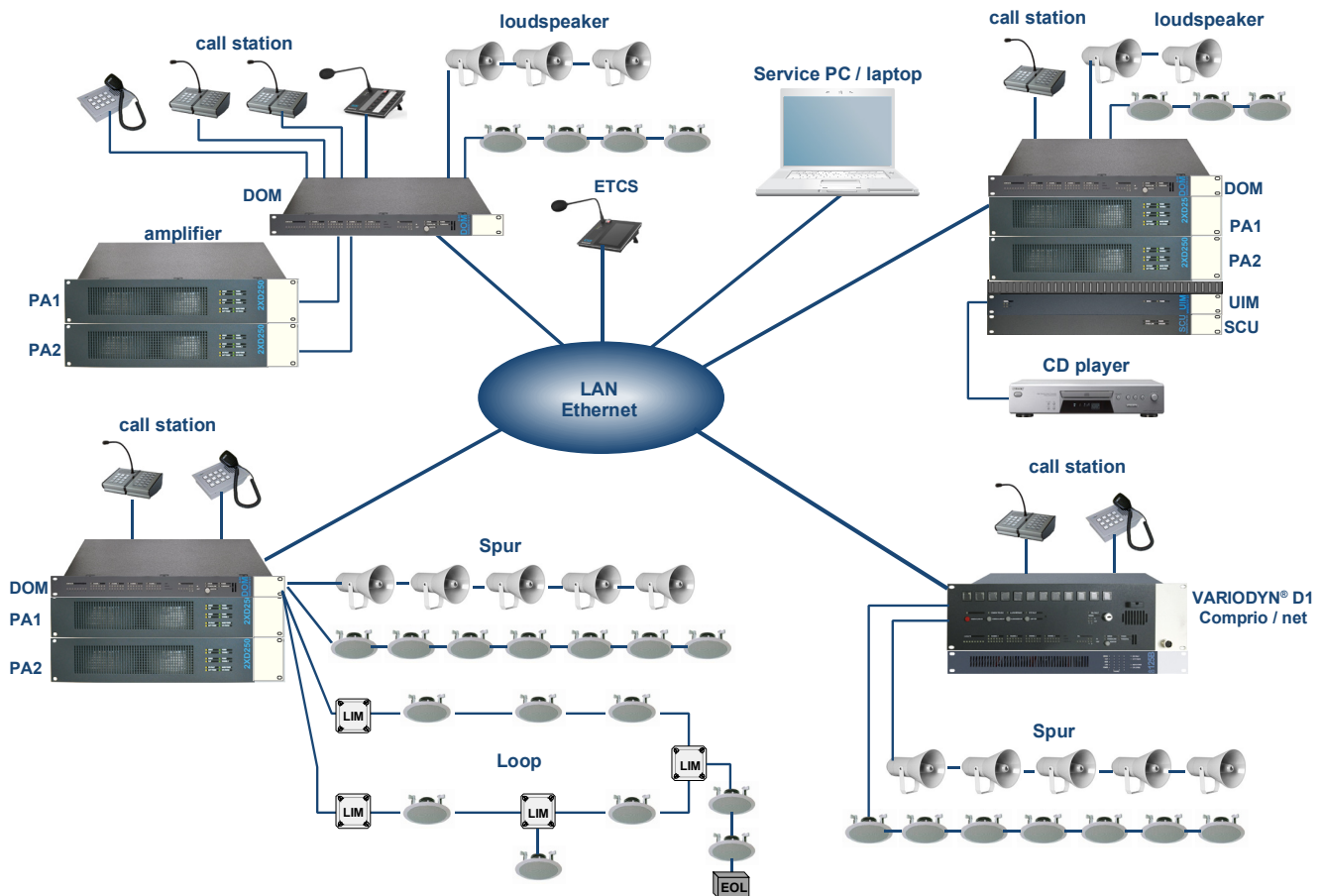


Fig. 1: Overview



For security reasons only one independent D1 network (LAN) can be used without a logical and/or physical connection to the internet or another network. See also the security instructions in Section 3.1.



The technical performance characteristics may be limited by standards, directives and local requirements.

2.1 VARIODYN® D1

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

System limits

Components	Number without protocol 11	Number from protocol 11
DOM / SCU / ETCS	250	400
Amplifier channels	1000	1600
Multiple amplifiers	250	400
PA-Server	10	10
PC-Callstation	10	---

See documentation (Part No. 798663.GB0) for further information.



- The system communication units (SCU) cannot yet be controlled via the protocol 11. For this reason the system limits when using SCU apply without protocol 11 – See table.
- "PA-Server" and "PC call station" are MS-Windows PCs incl. installed PAMMI Plus-SW. This SW provides the functionality of a call station ("PC call station") as well as the interface for control of the VARIODYN(R) D1 system ("PA-Server") by external (also third-party) devices. For identification, they use addresses from the same address space as the DOM and the SCU. This reduce the max. number of DOM and SCU in the system by 2 per PC call station and by 1 per each PA-Server. The max. number of PC call stations / PA-Servers is valid for the sum of both.
See documentation (Part No. 798670.GB0) for further information.

2.2 VARIODYN® D1 Comprio

The VARIODYN® D1 Comprio consists of the control unit and an external amplifier with four final stages. The programming software "Designer D1" with graphical user interface is available for configuring the system. In principle, one differentiates between the two versions of "stand-alone" and the device version "Comprio / net" for network-compatible operation. Network-compatible devices can be networked over Ethernet with the components of VARIODYN® D1.

System limits

Components	Number without protocol 11	Number from protocol 11
Digital output modules (DOM)	250	400
Amplifier channels	1000	1600
DAL bus subscribers	1000	1600
Loudspeaker circuits	6000	9600

See documentation (Part No. 798667.GB0) for further information.

3 Preparation for Commissioning

3.1 System Prerequisites and Operational Safety

The system components of VARIODYN® D1 (DOM, SCU, etc.) are connected together via Ethernet. The network must satisfy the following requirements to ensure uninterrupted transmission of audio data:

- 100 Mbit/s or more
- Full-duplex operation (switched network)
- No flow control
- No hubs
- Requirements on routers and managed switches when using a VLAN:
 - Support for VLAN packets in transparent / trunk mode
 - Support for at least two priority levels, with level 6 as high level for audio data
 - Support for dynamic multicast routing IGMPv2
- Requirements on routers and managed switches with VLAN deactivated on VARIODYN® D1 components:
 - Support for layer 3 QOS according to RFC2474



To ensure operational safety and protect against cyber attacks from the Internet, the following requirements must be met:

- Operate VARIODYN® D1 in an independent network, separated from the Internet, exclusively consisting of VARIODYN® D1 components. If decoupling from the Internet is not possible, the VARIODYN® D1 network must be protected against unauthorized access from the Internet by a gateway and a firewall.
- Use a suitable access control system to prevent access to the devices by unauthorised persons within the VARIODYN® D1 network. Potential security attacks (not necessarily complete) include:
 - Triggering false announcements that could cause confusion and/or panic
 - Manipulation of stored announcements with sensitive content (evacuation orders, emergency instructions, etc.)
 - Eavesdropping on confidential announcements
 - Sabotaging the system

The system operator is responsible for assessing the potential hazards resulting from unauthorised manipulation of the VARIODYN® D1 system and whether the system represents a potential attack target. The operator is responsible for the implementation of operational safety.

3.2 Software

The following software packages are required for commissioning of a VARIODYN® D1 system and are available at www.esser-systems.com or www.hls-austria.com.

- VARIODYN® D1 Designer (installation required)
- VARIODYN® D1 Terminal 1 (or Terminal 2)
- VARIODYN® D1 Audio Converter control unit
- Standard audio editing and conversion tool
- Standard Web server software (e.g. as freeware download)



- The current user software version and possibly an upgrade to the firmware of all devices are required for using the newest functions.
- The times when specific software is required are indicated in the chapters below.

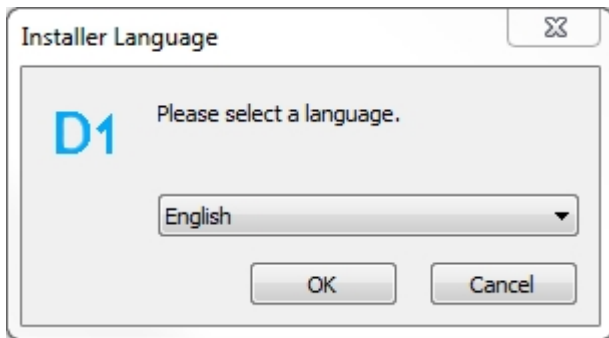
3.3 Technical Requirements

In order to run VARIODYN® D1 Designer and to be able to configure a VARIODYN® D1 system, the following technical requirements must be met:

- Intel Pentium III processor with 1.8 GHz or equivalent
- OpenGL 3D hardware acceleration
- Screen resolution of 1024 x 768 pixel (recommended)
- At least 1024 MB of RAM (2048 MB recommended)
- At least 100 MB of free hard drive space
- 100 Mbit network card with RJ45 connection
- Microsoft Windows 7 and 10
- 3-button mouse with scroll wheel

3.4 VARIODYN® D1 Designer Software Installation

After starting the installation program, the dialog for selecting the installation language is displayed first:

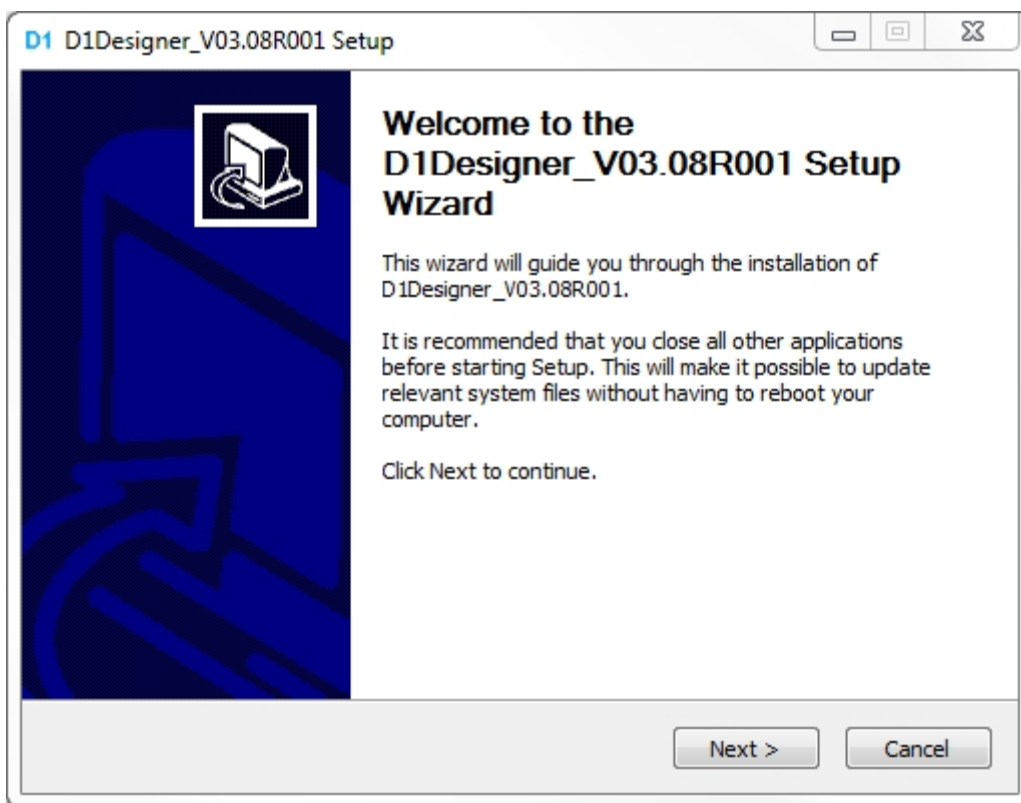


Run setup

However, the installation can also be started directly via the executable file **setup.exe**.

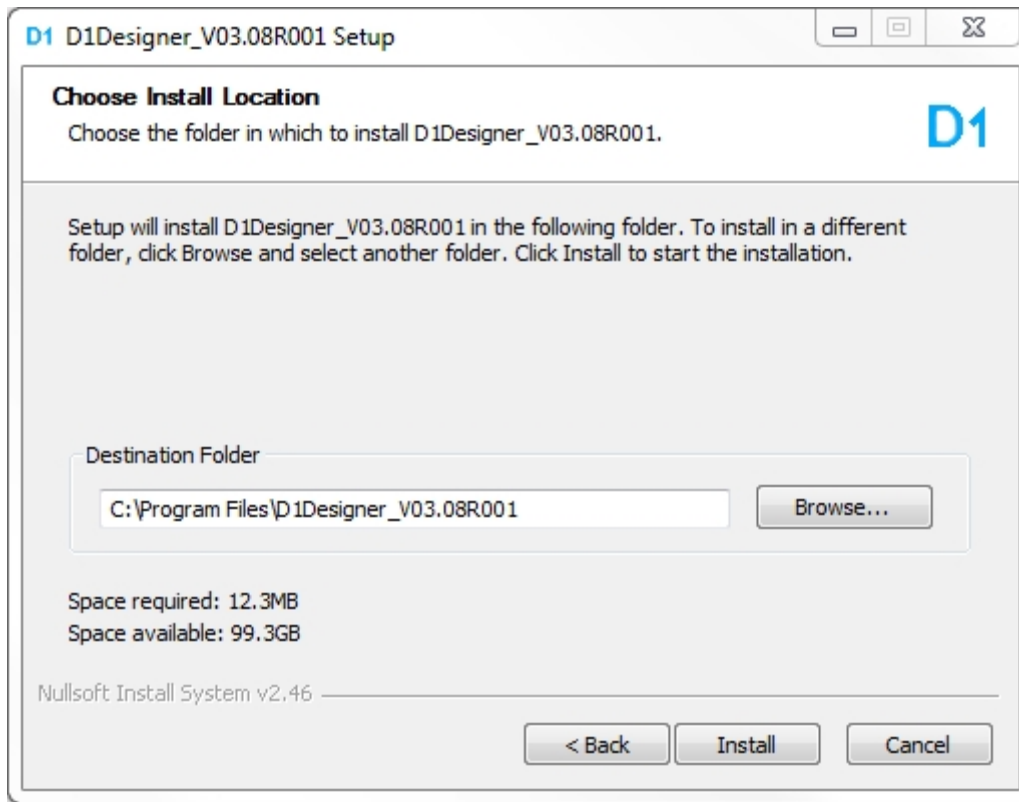
The Installation Options window then appears.

Select the components that should be installed. Then click on the >Next< button to move to the next page.



Installation folder

The desired installation directory can be entered directly in this dialog. Then click on the “Install” button to install VARIODYN® D1 Designer with the selected options.



After the installation is complete, you can close the installation window with the “Close” button.



If it is not possible to draw connecting lines between objects when using D1 Designer, a checkmark must be placed in the global settings under the File menu next to “Incompatible Graphics Workaround” in order to solve this problem (see Chapter Menu Navigation).

4 Commissioning



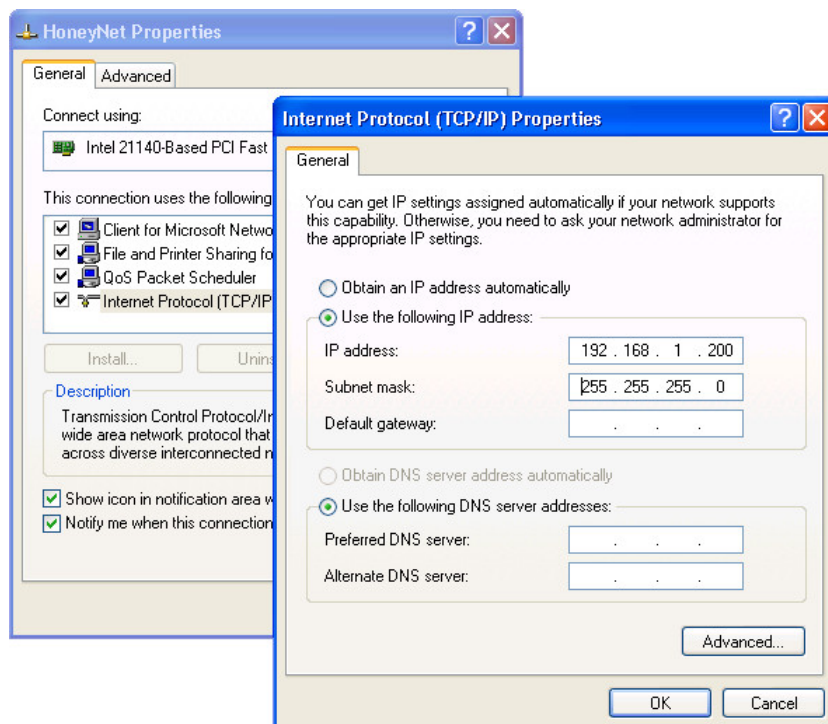
- The commissioning may only be performed by qualified experts.
- Upon commissioning of the installed and configured system, every call station, especially the fire brigade / evacuation call stations must be tested to ensure proper operation by executing the relevant functions including a “test call”!



All terminal commands used are described in detail in the command reference.

4.1 Preparations

- Ensure that the VARIODYN® D1 system being commissioned was installed according to the applicable directives and standards (see documentation 798663.xx or 798667.xx).
- Inform all responsible persons about the start of the commissioning.
- Switch on the power supply for all devices.
- Connect the service PC to the D1 network via Ethernet cable.
- Configure the IP address on the service PC to ensure communication.



Use an IP address that corresponds to the D1 network but does not already exist.
The subnet mask must be identical to the D1 network subnet mask.
Default IP range: 192.168.1.x
Default subnet mask: 255.255.255.0

4.2 Configuring IP Address

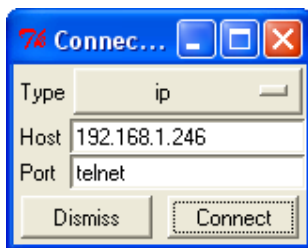
If the system was delivered with a default IP address, ensure when setting up a VARIODYN® D1 network that all control units communicating together are operating in the same network and are configured with identical subnet masks. Every control unit requires its own unique IP address in the network. This step must therefore be performed separately for each control unit if two or more control units are used.

- Start the D1 terminal on the service PC and establish communication with the individual control units.



Select type "ip".

A serial connection to the control unit is also possible through use of a TWI adapter. The IP addresses of the control units can be assigned simply and easily over the serial interface during the initial commissioning without the need to disconnect the network connection between the control units.

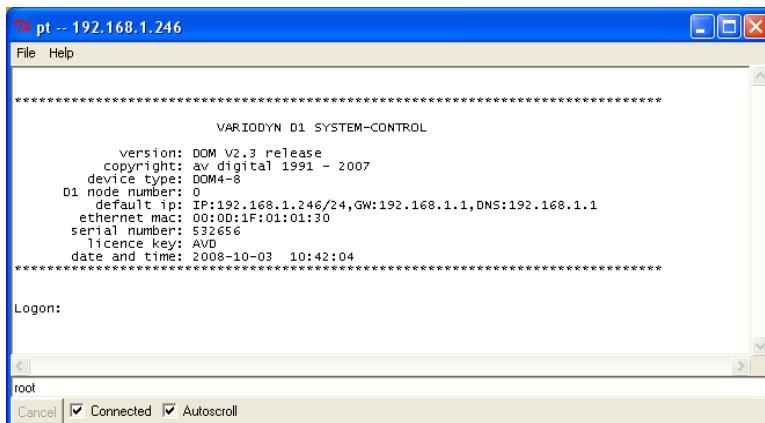


The host is the IP address of the control unit you wish to connect to.
(Default IP is 192.168.1.246)



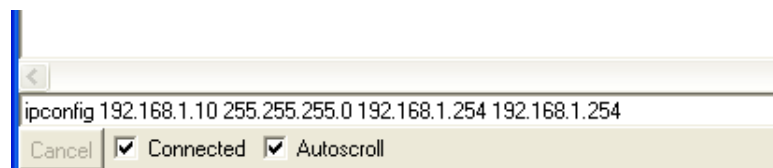
When communicating via LAN, the control units must not be connected together since all control units are assigned the same IP address at the factory.

- Log on.



Enter the username and password here.
The default user is "root" with no password.

- Change the IP address.



Enter the new IP address, subnet mask, gateway and DNS using the "ipconfig" command.
Always specify the gateway and DNS – if these do not exist, enter 0.0.0.0.

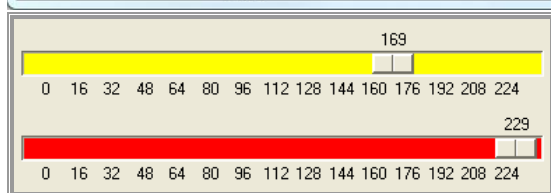
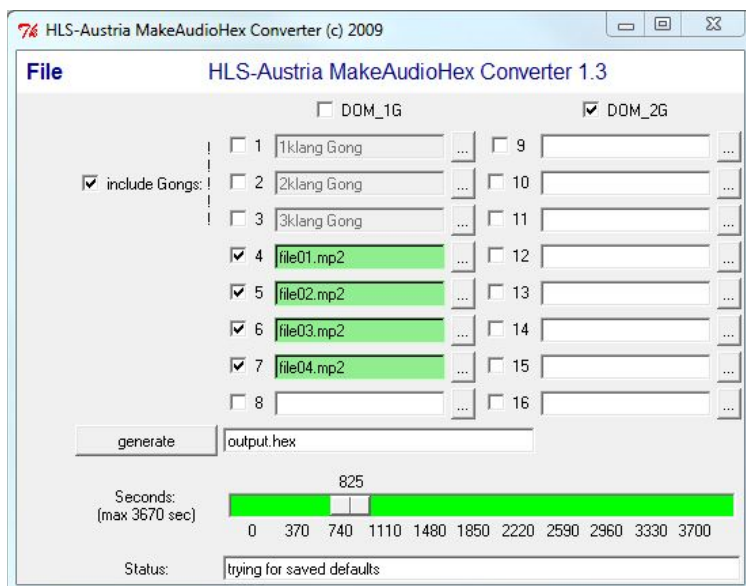
4.3 Loading Files into the Internal Audio Memory

Every VARIODYN® D1 has its own audio memory that can be used throughout the entire system. For this reason, it is generally only necessary to program a single control unit with the corresponding audio files. A maximum of 16 memory slots with up to 1-hour audio (with current hardware) are available per control unit. Each control unit can only play a single audio file at any time. If necessary, various audio files can be distributed among multiple control units in order to permit simultaneous playback. To do this, perform the following steps for each control unit:

4.3.1 Converting Audio Files to the VARIODYN® D1 Format

Start the conversion tool "MakeAudioHex" from V1.3. The audio files added here must first be converted to a specific standard audio format:

- MPEG1 Layer2
- 48,000 Hz
- Mono
- 128 kbit/s



The hardware version of the control unit must be selected – this determines the maximum available audio capacity. A "DOM 2G" provides a 230 V AC and 24 V DC input.

Select presignals ("include Gongs").

If the presignals are not selected, these are not available in the control unit. (Only recommended if all the memory is required for individual audio files.)

Then add the MP2 files in the desired order.

If necessary, change the output name (output.hex) and generate the file – this will be created in the directory "...\\hex".

From firmware V2.10 onwards, up to 1 hour of audio can be stored in the control unit.

Available memory display:

Green: Sufficient memory available

Yellow: Low amount of memory remaining

Red: Max. memory exceeded



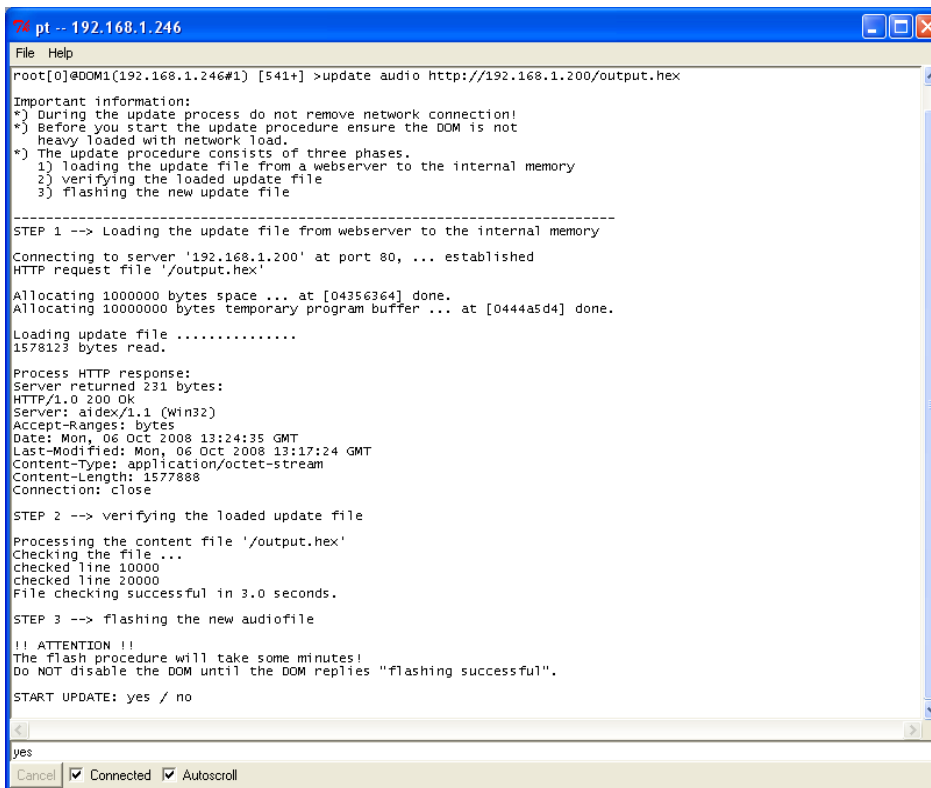
The created files can only be loaded onto the respective control unit hardware version.

If audio files are added later, all previously existing audio files must also be included again, otherwise they will no longer be available on the control unit.

Audio files already loaded on the control unit can be displayed via the D1 terminal with the "audiolist" command (only available if the file was created with the MakeAudioHex converter of version 1.2 or higher).

4.3.2 Uploading Audio Files to the control unit

The converted audio file (*.hex) must be made available via a Web server (e.g. as freeware download) on the service PC. Then the file must be flashed onto the control unit via the D1 terminal.



```

pt -- 192.168.1.246
File Help
root[0]@DOM1(192.168.1.246#1) [541+] >update audio http://192.168.1.200/output.hex

Important information:
*) During the update process do not remove network connection!
*) Before you start the update procedure ensure the DOM is not
  heavy loaded with network load.
*) The update procedure consists of three phases.
  1) loading the update file from a webserver to the internal memory
  2) verifying the loaded update file
  3) flashing the new update file

-----
STEP 1 --> Loading the update file from webserver to the internal memory
Connecting to server '192.168.1.200' at port 80, ... established
HTTP request file '/output.hex'

Allocating 1000000 bytes space ... at [04356364] done.
Allocating 10000000 bytes temporary program buffer ... at [0444a5d4] done.

Loading update file .....
1578123 bytes read.

Process HTTP response:
Server returned 231 bytes:
HTTP/1.0 200 Ok
Server: aldex/1.1 (Win32)
Accept-Ranges: bytes
Date: Mon, 06 Oct 2008 13:24:35 GMT
Last-Modified: Mon, 06 Oct 2008 13:17:24 GMT
Content-Type: application/octet-stream
Content-Length: 1577888
Connection: close

STEP 2 --> verifying the loaded update file
Processing the content file '/output.hex'
Checking the file ...
checked line 10000
checked line 20000
File checking successful in 3.0 seconds.

STEP 3 --> flashing the new audiofile

!! ATTENTION !!
The flash procedure will take some minutes!
Do NOT disable the DOM until the DOM replies "flashing successful".

START UPDATE: yes / no
yes
[Cancel] [Connected] [Autoscroll]

```

Set the operating mode to configuration:
"opmode config"

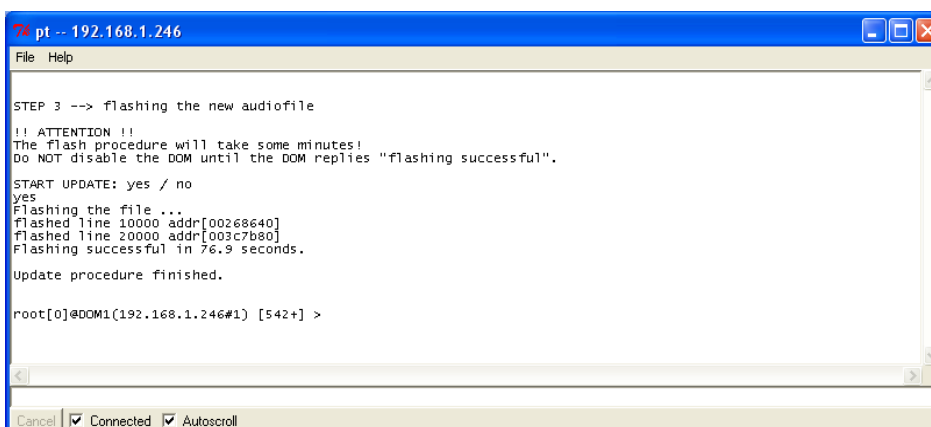
Start the flash process with the command:
"update audio http://PC-IP-address/filename.hex".

If an audio file exceeding ≥ 260 seconds is created with a converter of V1.3 and higher, the "update audio+ http://PC-IP-Adresse/Dateiname.hex" command must be used.

The file name can be max. 22 characters, and all files must be located in the root directory of the web server. Subfolders are not allowed!

The control unit loads the file from the service PC and checks it.

To start the flash progress, enter "yes" in the command line.



```

pt -- 192.168.1.246
File Help

STEP 3 --> flashing the new audiofile

!! ATTENTION !!
The flash procedure will take some minutes!
Do NOT disable the DOM until the DOM replies "flashing successful".

START UPDATE: yes / no
yes
Flashing the file ...
flashed line 10000 addr[00268640]
flashed line 20000 addr[003c7b80]
Flashing successful in 76.9 seconds.

Update procedure finished.

root[0]@DOM1(192.168.1.246#1) [542+] >
[Cancel] [Connected] [Autoscroll]

```

The flashing has completed properly when "Update procedure finished" appears.

Set the operating mode back to normal:
"opmode normal"



If "Flashing successful" does not appear, please repeat the flash process.

Do not forget to set the operating mode back to "normal".

The created files can only be loaded onto the respective control unit hardware version.

4.3.3 Displaying Audio Files in the control unit

```

pt -- 192.168.1.246
File Help

root[0]@(192.168.1.246#1) [ 10+] >audiolist

Nr.  Title                length  date      time
001: 1KlangGong           00:00:03 20050217 00:22:30
002: 2KlangGong           00:00:03 20050217 00:22:30
003: 3KlangGong           00:00:05 20050217 00:22:30
004: Alarmtext1.mp2       00:00:18 20090824 13:23:37
005: Alarmtext2.mp2       00:00:07 20090423 11:06:20
006: Alarmton+Notfall.mp2 00:00:24 20090824 13:24:00

root[0]@(192.168.1.246#1) [ 11+] >
    
```

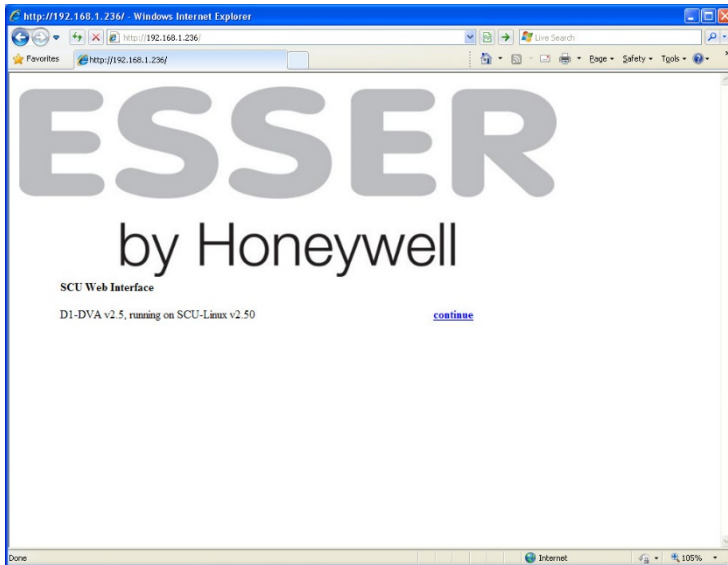
Loaded audio files can be displayed with the "audiolist" command (only available if the file was created with the MakeAudioHex converter of version 1.2 or higher).

4.4 Commissioning the SCU (if present)

- Switch on the power supply.
- Press the "Power" button (rear middle) once briefly. The Linux operating system takes about 1 minute to boot.

4.5 Configuring the SCU IP and VLAN Address (if delivered with a default IP address)

- Open a connection on the service PC.



The SCU is configured with an Internet browser using an integrated Web server. To connect, enter the IP address of the SCU into the browser.

Default IP is 192.168.1.236

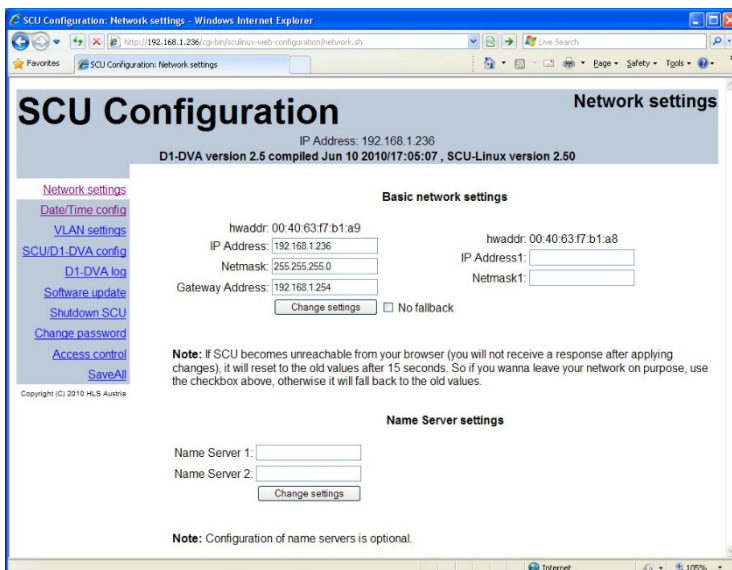
The welcome screen then appears incl. latest firmware.

Switch to the configuration view with "continue".



For a direct physical connection from the service PC, it is necessary to use a cross-over network cable.

- Change the IP address.



It is possible here to assign a new IP address, subnet mask and gateway.

Enter the desired data and confirm with "Change settings".

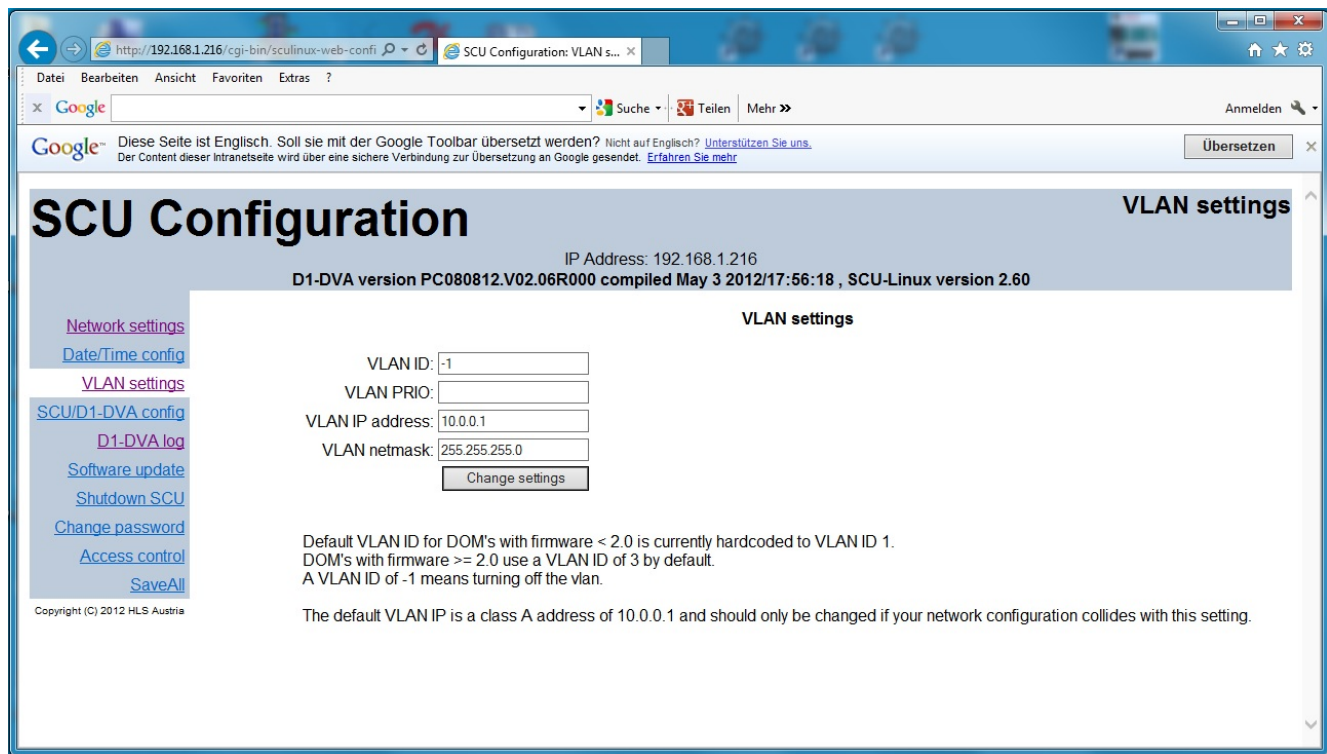
If the SCU can no longer connect to the service PC after changing of the IP address, the IP address is automatically reset in order to protect against incorrect entries. This process can be suppressed by selecting the setting "No fallback" when switching to a different subnet.

Save changes with „SaveAll“.



If the new IP address is located in the subnet of the VLAN IP address, the VLAN IP address must be moved to another subnet or VLAN must be deactivated (see next item). This situation frequently arises when a new SCU is created if the IP addresses of the VARIODYN® D1 components are assigned in the 10.0.0.x subnet. In this case the IP address collides with the factory default setting of the VLAN IP address (10.0.0.1).

- Change the VLAN address



If you want to configure a separate VLAN for VARIODYN® D1, open the associated input dialog by clicking “VLAN settings” in the navigation panel on the left. Enter the VLAN ID, priority, address and netmask here and confirm with “Change settings”.

Factory default settings:

VLAN ID:	3
VLAN PRIO:	6
VLAN IP address:	10.0.0.1
VLAN netmask:	255.255.255.0

Setting the VLAN ID to -1 deactivates the VLAN.

Save changes with “Save All”.

The VLAN settings can only be configured or changed via the Web interface of the SCU, not with the Designer D1 programming software.



With VLAN activated, the IP address and the VLAN IP address must be in different subnets. Otherwise problems can arise with monitoring and control of the SCU.



Press the button “Power” (rear middle) once briefly to shut down the SCU. The operating system then performs a controlled shutdown.

Do not switch off the power supply until the POWER LED (front side) goes out.

5 Configuration

The VARIODYN® D1 system is configured using programming software Designer D1. Configuration of the VARIODYN® D1 Comprio is only possible as of version V03.08. This is a powerful software tool that allows the configuration of complex VARIODYN® D1 public announcement systems in a graphical environment.

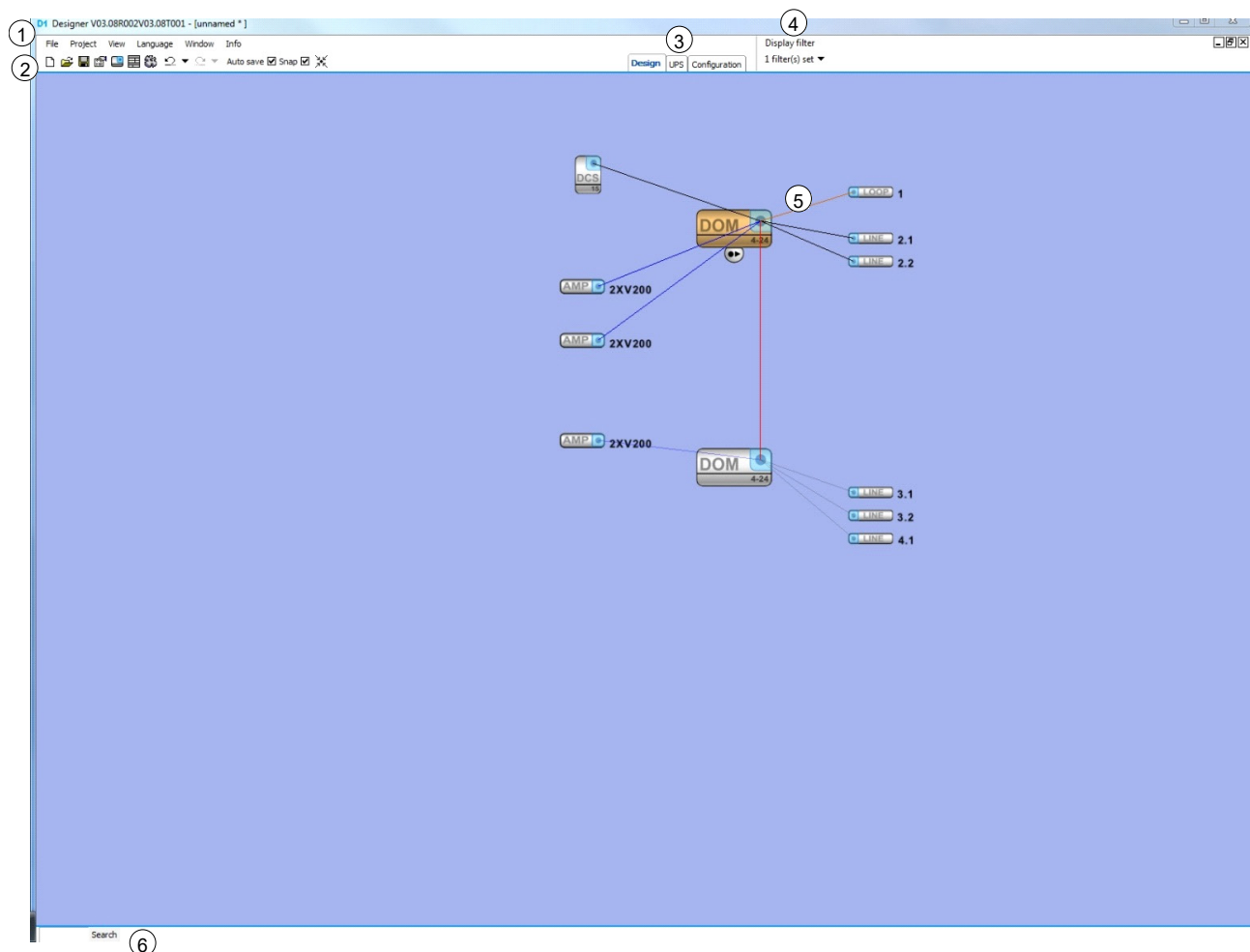
Features

- Plan and design complex voice alarm systems
- Create individual configurations
- Save and load configurations
- Convert and upload audio files



Due to differing software versions, it is possible that some of the functions described in the following chapters will not be available. The current software version and possibly an upgrade to the firmware of all components is required for using the complete functions.

5.1 The Program Interface



①	Menu
②	Toolbar
③	Mode selection
④	Display filter
⑤	Project window
⑥	Search function

Toolbar

The most important functions can be accessed quickly via the toolbar. It offers direct access to the following functions:

- New
- Open
- Save
- Project Properties
- Open Object and Properties Window

Additional functions can also be accessed, such as: generate configuration, undo/redo buttons, automatic background save, enable/disable snap function and centring function.

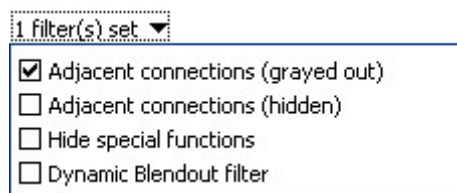
Modes

VARIODYN® D1 Designer has 3 modes (Design, UPS and Configuration modes) for carrying out various configuration steps. The individual functions of the modes are described in the chapters below. It is possible to switch between modes.



Display filter

Display-specific filters can be set with the >Filter< button. If no filter is set, all lines and symbols are completely displayed.



Adjacent connections (grayed out):

Only lines that are connected directly to the currently selected object are displayed. All other lines are partly faded out.

Adjacent connections (hidden):

Only lines that are connected directly to the currently selected object are displayed. All other lines are not displayed.

Hidden special functions:

To improve readability, all special function symbols (e.g. signs of life, system errors) are hidden.

Dynamic hiding:

If this filter is activated, objects (e.g. system errors, groups or calls) are dynamically hidden according to the current zoom factor. Less important functions are hidden at a smaller zoom, more important symbols (e.g. DCS) only upon a larger zoom.

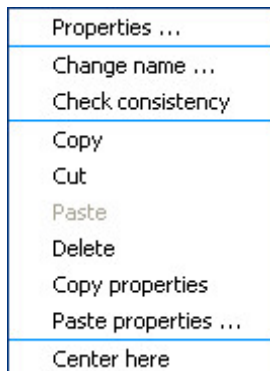
Search function

A search function can be found in the lower left corner of the program interface. Here it is possible to search in the project by object names. Enter a text or text fragment and start the search by pressing "Search". If a match is found, the corresponding object is displayed.





Project window

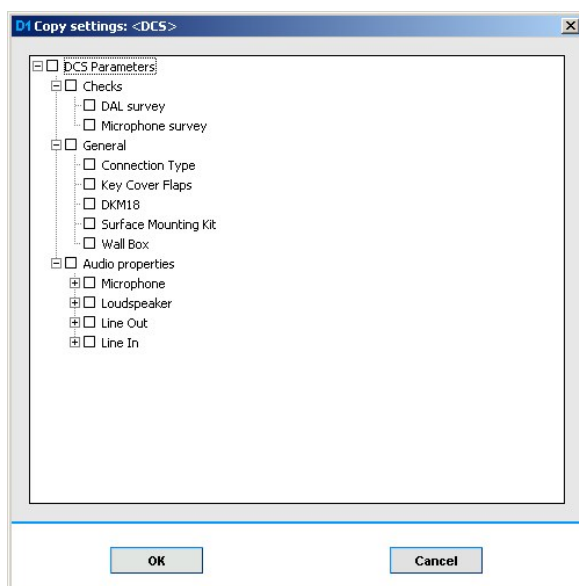
To add objects to the project window, the desired object must be dragged from the object list on the right side into the project window. Right-clicking on an object in the project window opens a context menu with the following options:




- Opens the properties of the object
- Allows the object name to be changed
- Copies the object
- Copies and deletes the object
- Inserts an object from the clipboard
- Deletes the object
- Copies settings of the object
- Applies copied settings

The control unit also has additional AVC settings (see chapter Automatic Volume Control).

Certain objects have additional controls that can be opened up by clicking on the symbols  and , which appear when the mouse cursor passes over the objects. These functions are described for the specific objects in the chapters below.



When pasting properties onto an object, a selection window appears in which specific settings to be applied to the object can be selected.

To connect objects together, click on the connection symbol  of an object. The new connection line can then be connected to the connection symbol of another object, or the connection attempt can be cancelled by pressing the ESC key or the right mouse button.



If problems arise with object connections or additional controls, consult the chapter Software Installation.

Hold down the middle mouse button and move the mouse in the desired direction to move within the project window. Scrolling up or down with the mouse wheel zooms in or out.

The keyboard controls can also be used. The direction arrows can be used to change the area displayed in small increments (or in large increments by holding the ctrl key). The '+' and '-' keys can be used to zoom.

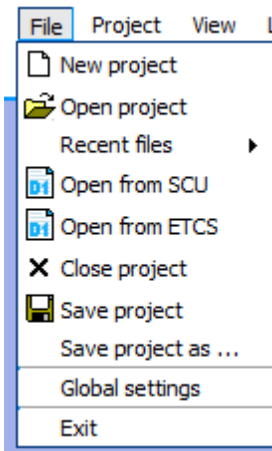
Objects can be marked using the mouse. Several objects and lines can be marked by holding down the ctrl key, or by dragging a selection area over them with the mouse. This marks the objects with the selected filter. To mark all objects and connections, the filter "Adjacent connections (greyed out)" must be deactivated or alternatively a new selection area created using the mouse.

Keyboard shortcuts for specific functions of the Designer software:

STRG-N	New project
STRG-O	Open dialog
STRG-S	Save current project
STRG-Q	Close current project
STRG-G	Show VCF generation dialog
STRG-P	Show properties window
STRG-TAB	Switch modes: Design - UPS - configuration
HOME	Jump to coordinates [0,0] at the default zoom level
PgUp	Maximum zoom in
PgDn	Maximum zoom out

5.2 Menu Navigation

5.2.1 File



New project

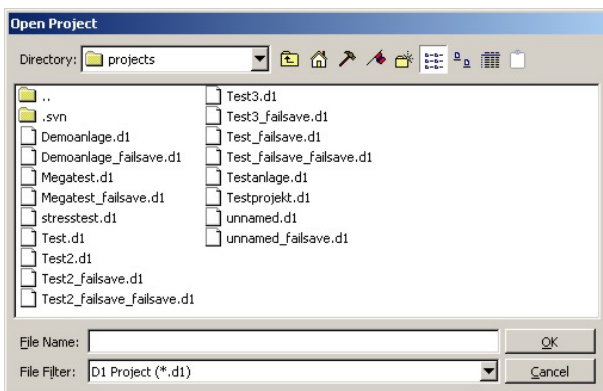
Opens a new project window.

Recently opened files

Recently opened projects can be reopened here.

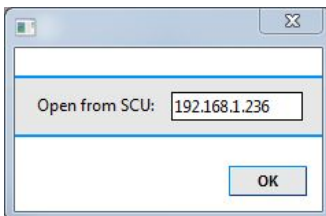
Close project

Closes the currently active project.



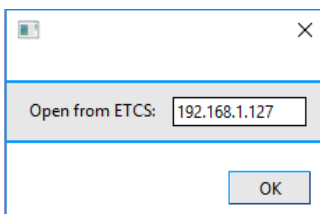
Open project

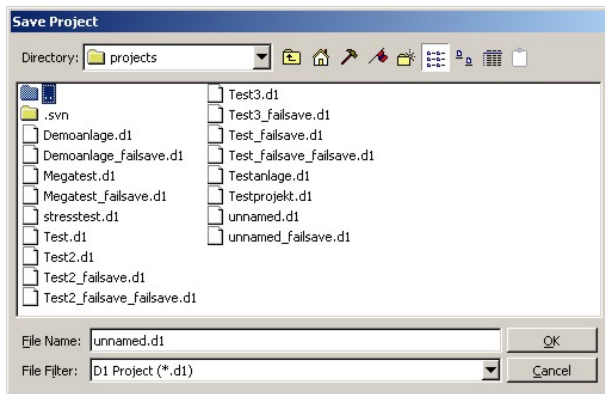
Displays the dialog for opening an existing project.



Open from SCU / ETCS

Opens the dialog for selecting an SCU / ETCS. Also used to enter the IP address for the SCU / ETCS where the designer previously saved the configuration (see chapter 'Loading a Configuration').



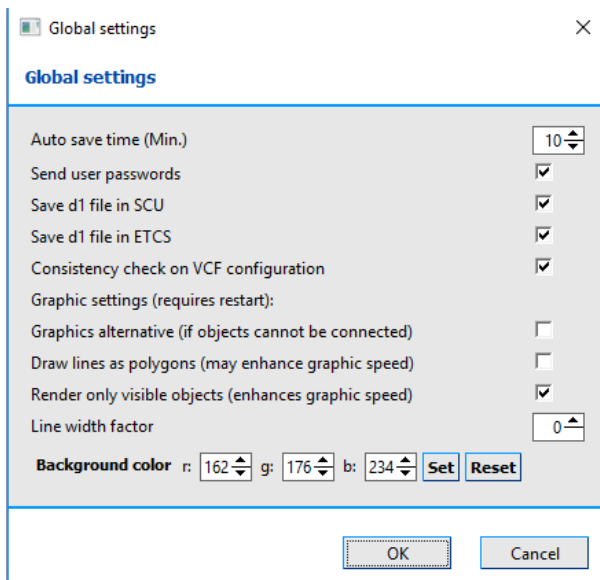


Save project

Saves the currently active project. If the project has not yet been saved, the dialog for saving a project is displayed.

Save project as

Displays the dialog for saving a project.



Global settings

Configuring the automatic save interval.

You can specify here whether the user passwords are transferred together with the configuration.

For projects with an SCU / ETCS, the designer configuration can also be automatically saved on the SCU / ETCS hard drive.

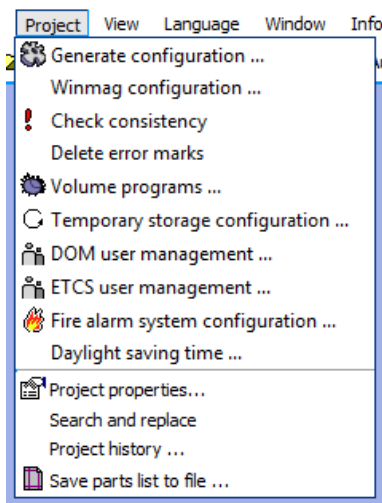
The consistency check can also be started automatically when creating the configuration, if desired.

Only change the graphic settings in event of connection or display problems.

On PCs with a high screen resolution, the line thickness of the connections (and similar) can be changed here.

If desired, the background colour for the projects can also be configured in this dialog using an RGB code.

5.2.2 Project

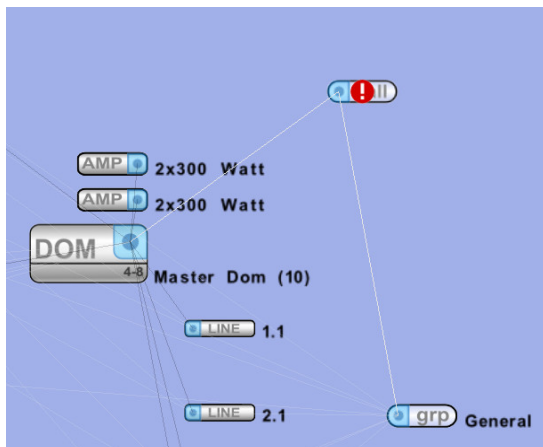


Generating a configuration

The upload tool for loading the configuration can be opened with this menu item.
(See chapter loading a Configuration).

Check consistency

This checks whether the project contains objects in which important lines for the function are missing or have been forgotten.



If an object has not been sufficiently connected, this is indicated with a red exclamation mark at the object directly in the project interface.

In addition, an error regarding the type of missing connection is shown in the output window.

Clear error indicators

Clears the red exclamation marks shown in the project interface as a result of the consistency check.

Volume programs

This function allows the creation of time-based volume programs that can be assigned to each audio input or output via the audio settings dialog. Two different parameterisable volume values are possible per volume program. (See chapter Time-Based Volume Control)

Temporary storage configuration

The temporary storage configuration allows setting of all individual parameters for the temporary storage function. If the project does not contain an SCU, no settings can be configured here.
(See chapter Automatic Temporary Storage)

Control unit (e.g. DOM or ETCS) user management

With the user management function, new users can be created for the current project, existing users can be edited and access rights can be managed. (See chapter User Management)

Fire alarm system configuration

Configuration files from a fire alarm system (FAS) can be imported here
(see chapter Serial Connection to a Fire Alarm System).

Daylight saving time

The automatic switching of daylight saving time can be enabled or disabled here. To make changes for specific countries, only the corresponding days, months and times must be entered.

E.g. last Sunday in October at 3 am.

Project properties

Displays the dialog for changing the project properties.

Here it is possible to enter the project name, project number, creation date, editor name, editor's e-mail address, telephone number, fax number and a project password. The password set here must always be entered upon opening the project.

The checkbox for "Protocol11" defines whether the new protocol 11 (available from control unit firmware V3.0) or protocol 10 is used. More control units can be used in a project with the new protocol.

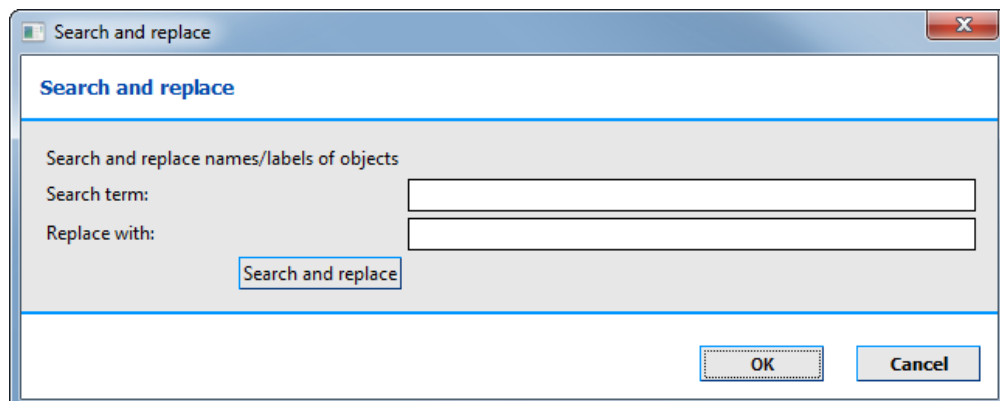
The checkbox is automatically ticked when a new project is created. If a configuration is being created for firmware (< V3.0), the checkbox must be deselected manually.

"Switchback to opmode normal" defines the time after which the opmode config is automatically closed. 0 means immediately, -1 means never.

The "Last VCF version" field saves the control unit firmware version selected when the last VCF configuration was created. The next time the VCF Generator is opened, this version is automatically pre-selected.

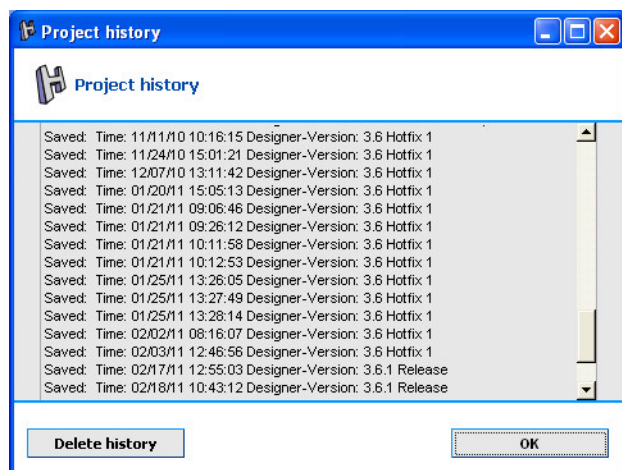
Search and replace

The Search and replace dialogue can be used to replace labels or parts of labels for the objects used in the designer.



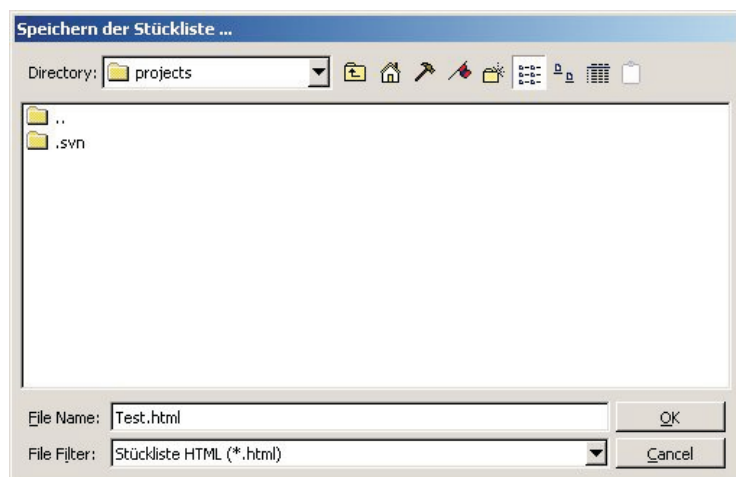
Project history

The project history tracks changes and save actions. All entries can be reset with "Delete history".

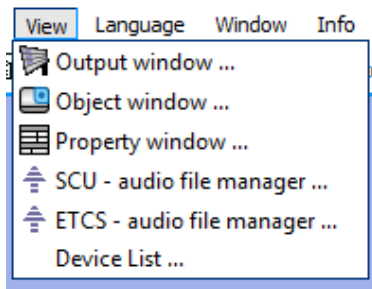


Save parts list to file

Saves a parts list for the current project as a .txt or .html file.




5.2.3 View



Output window

The output window displays comments or configuration conflicts. These include, for example, exceeding of the signal count or overlapping system numbers when entered manually.



The corresponding object with the conflict can be centred and selected by clicking on .

Object window

This displays the object window.

Properties window

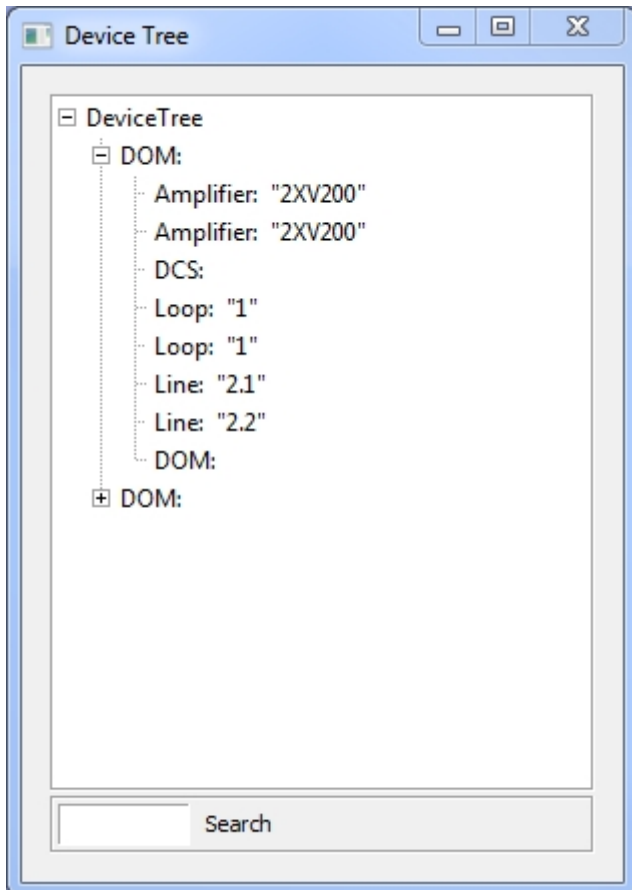
Opens the properties window. This window always shows the setting options of the currently selected object.

SCU and ETCS audio file manager

The SCU audio manager or ETCS audio file manager is used to convert audio files, load them onto the SCU or ETCS and create project-independent playlists. (See chapter Uploading Audio Files)

Device list

The device list contains a hierarchical list of all devices and functions. Clicking on an element selects and centres the associated graphical object.



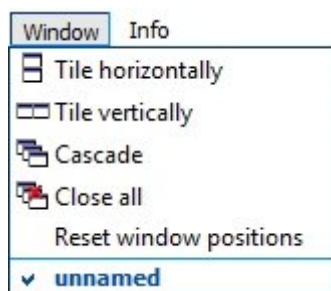
5.2.4 Language



The Language menu allows the user to change the application language at any time.

In order to display many languages correctly, the associated fonts must be installed in Windows.

5.2.5 Window



The Window menu contains functions for arranging multiple open project windows or switching between individual projects.

"Reset window positions" resets the object or properties window back to its default location. This is useful if the window lies outside of the visible region due to a change in monitor resolution.

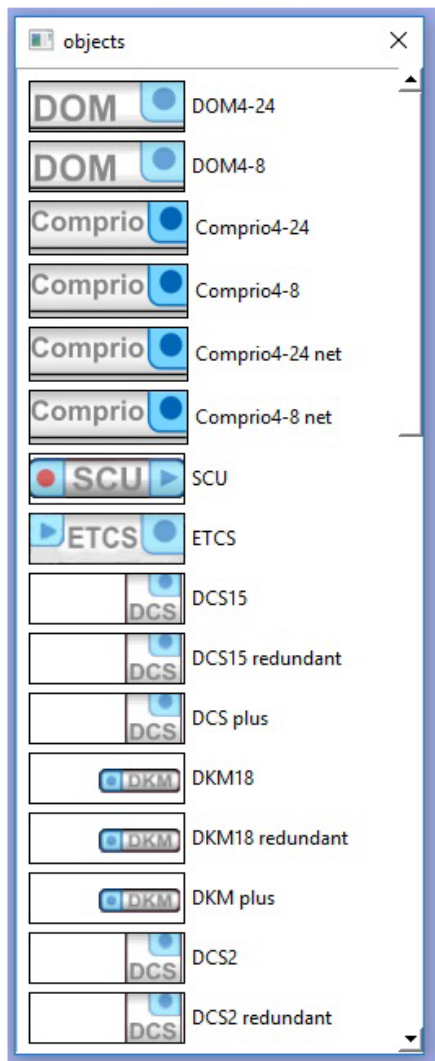
5.3 Hardware Configuration

General information


The entire hardware configuration for a VARIODYN® D1 system can be defined in design mode by inserting VARIODYN® D1 modules and connecting them to each other.



Objects

The object list in design mode contains all hardware components of a VARIODYN® D1 system.



Object connections

Connection lines are drawn in design mode to link specific hardware components together. To connect objects together, click on the connection symbol  of an object. The new connection line can then be connected to the connection symbol of another object, or the connection attempt can be cancelled by pressing the ESC key or the right mouse button.

Many objects have additional controls that can be opened up by clicking on the symbols  and , which appear when the mouse cursor passes over the objects.



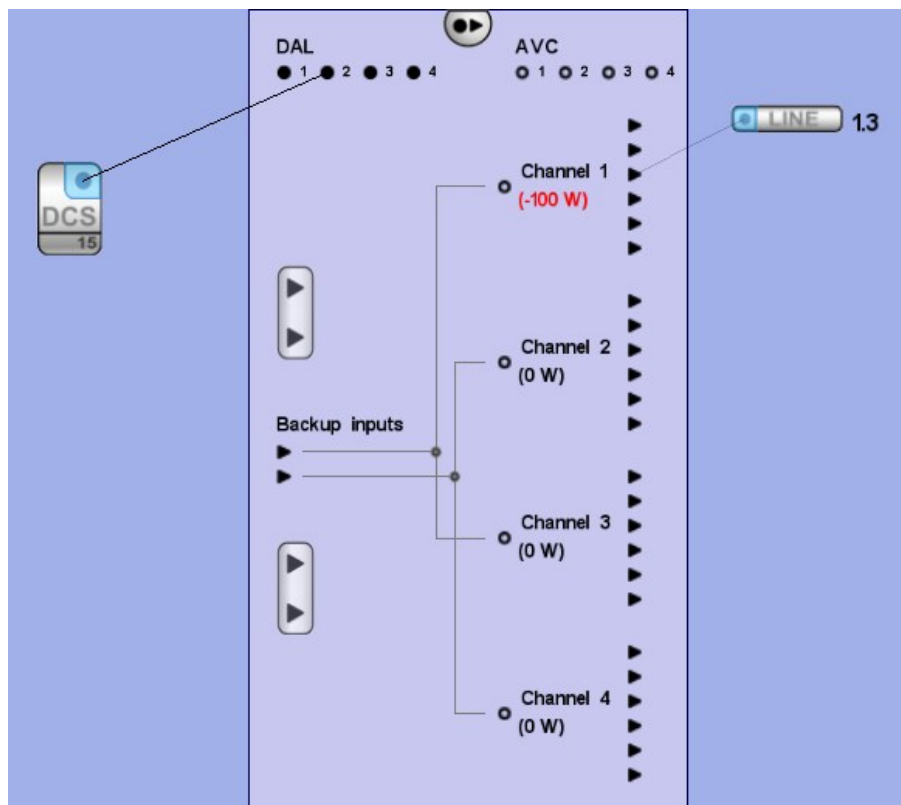
If problems arise with object connections or additional controls, see [Software Installation](#).


5.3.1 Control unit DOM or Comprio



The control unit is the main module of a VARIODYN® D1 system. If multiple objects are present in a project, they are automatically assumed to be networked together. A connection line is not required.

All other objects, such as amplifiers, DCS15, or speaker lines, are connected to the object. This can take place either directly via the connection symbols (automatic assignment of the order) or via the additional controls of the control unit.



The  symbol opens the additional connection control of the control unit. This allows the order of the connected call stations, amplifiers and speaker lines to be individually defined. To do this, a connection line must be created between the connection symbol of the respective module and the desired input (DAL, amplifier channel) or output (relay).

Specific control unit settings can be configured in the properties window.

Object names should always be assigned.

The system number is generated automatically but can also be assigned manually. If an already existing system number is assigned, the numbers of these two control units are exchanged. It is recommended to set the system number equal to the last digit of the IP address (for greater clarity).

The network address of the respective control unit must match the real network address otherwise VARIODYN® D1 Designer cannot establish a connection to this control unit.

Only DOM4-8 / 4-24: The monitoring of the power supplies must be disabled accordingly if the DOM is operated only with 230 V AC or 24 V DC.

The monitoring functions for this control unit can be globally deactivated.

The client or master time synchronisation mode (+ time interval) can be selected.

The energy-saving mode can be adapted by adjusting the amplifier mode. A selection can be made here based on the functions and guidelines (see chapter Energy-Saving Mode)

Turn off and turn on times can be individually configured. A turn on time of 5 seconds and a turn off (follow-up) time of 30 - 60 seconds are recommended.

The error mode can be set to network or local and this specifies whether or not the control unit should display errors of other control units in the network.

The error state can be reset either manually or automatically. During manual operation, errors must always be reset on the control unit via the message list or button (see resetting the Object Error State). During automatic operation, the control unit is automatically reset when the error is corrected.

The error sound (plays when the control unit registers an error) of the monitoring speaker integrated into the control unit can be disabled with the "Error sound" checkbox.

If message groups are used within a project, it is possible to define whether messages and/or error messages from devices outside of the local message group are accepted and/or displayed.
(See chapter Message Groups)

The desired number of 100 V cable sets can be selected in the "Settings" chapter.

Only VARIODYN® D1 Comprio: Microphone / Line In 2 switch: Switches the variable input between the hand microphone and the second Line In input.

If a control unit is used as SNMP Trap Master, this sends information about the status (present / not present) of other control units in the network via the SNMP protocol.

Only VARIODYN® D1 Comprio: It can be selected with the number of signal generators how many signal generators can be used simultaneously by the VARIODYN® D1 Comprio (maximum of 4, default 1).



This setting should remain at the default value if special programming exists that refers to the signal generator as the connected source.

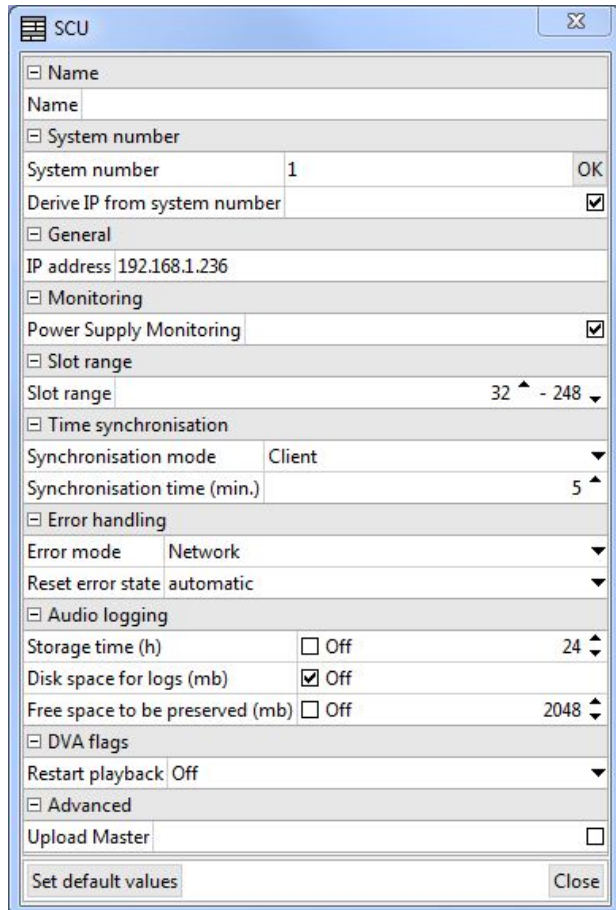
If the 4th ALR input of this control unit is used as audio input for signals with line level (e.g. music from a CD player), this must be set to 0 dB. Otherwise the signal will be too strong.

5.3.2 System Communication Unit (SCU)



The SCU (if present) is the digital audio storage device of the system. It can play back uploaded audio files as well as previously recorded announcements of all types. The SCU is an independent object and therefore does not need to be additionally connected to the control unit.

A name, system number and IP address can be specified in the properties window of the SCU.



In addition, the monitoring of the power supply can be deactivated (if the control unit is operated exclusively with 230 V AC or 24 V DC).

The memory slot range for recordings can be defined in the "Slot range" section. Recordings are only permitted within this range. All other slots are either reserved or intended for standard audio texts.

The client or master mode (+ time interval) can be selected in the "Time synchronisation" section.

The settings for saving recordings can be modified in the "Audio logging" section. The amount of time, total size and/or remaining free memory at which the recordings should be deleted.

Under "Restart playback", you can configure whether a file interrupted during playback should restart from the beginning (on) or continue playing from the point of interruption (off).

When working on a project with several SCU, the "Upload Master" attribute can be used to specify which SCU is used for the upload of the designer configuration (see chapter "Loading a Configuration").

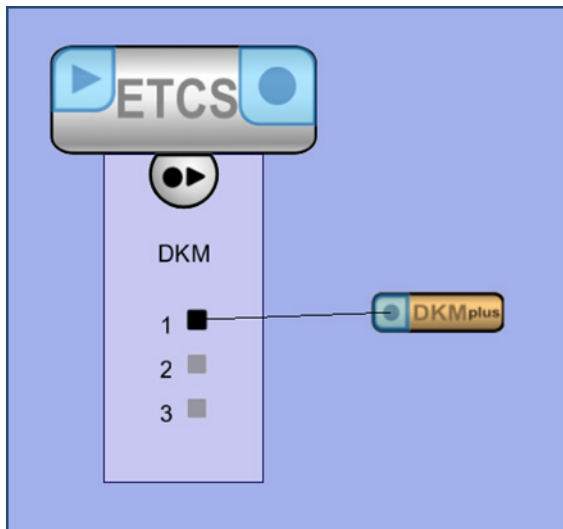
5.3.3 Ethernet Touch Call Station (ETCS)

Symbol:



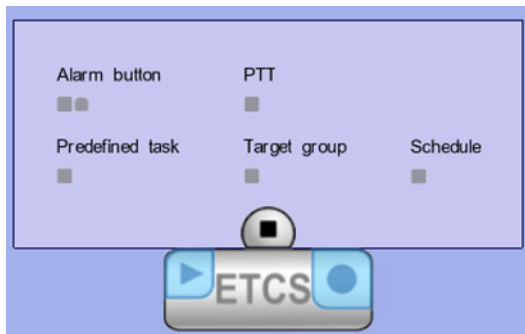
The Ethernet Touch Call Station (ETCS) is a call station that connects the VARIODYN® D1 VA-PA system via an Ethernet cable. It can be operated by touch screen.

A digital key module (DKM plus) can be connected to an ETCS. This can take place either directly via the connection symbols (automatic assignment of the order) or via the additional controls of the ETCS. Up to three DKM plus can be connected to an ETCS.



The “Alarm button” is the red button on the front panel of the ETCS and is generally used to play emergency announcements.

The “PTT” is the push-to-talk button on the handheld microphone. It is only available if the PTT option is checked on the “Properties” page. The PTT is used only when connecting a handheld microphone to ETCS.



ETCS settings can be configured in the “Properties” window.

Object names should always be assigned.

Although the system number is generated automatically, it can be assigned manually. If a system number is already assigned, the number of this object is exchanged for another. It is recommended to set the system number equal to the last digit of the IP address (for greater clarity).

The network address of the respective ETCS must match the real network address; otherwise, the VARIODYN® D1 Designer cannot establish a connection to this ETCS.

The monitoring of the DKM, Microphone and the network port can be activated or deactivated.

The client or master time synchronization mode (+ time interval) can be selected.

The “Error mode” can be set to “Network” or “Local”, which specifies whether an ETCS should display errors of other control units in the network.

The “Error sound” plays when an ETCS registers an error and can be disabled with its checkbox for monitoring speakers integrated into an ETCS.

If message groups are used within a project, it is possible to define whether messages and/or error messages from devices outside of the local message group are accepted and/or displayed (See chapter “Message groups”).

When working on a project with several ETCS, the “Upload Master” attribute can be used to specify which ETCS is used for the upload of the designer’s configuration.

Check the PTT option if you are using a handheld microphone with a push-to-talk button.

VA Live, EVAC, and Alert are used in the VA broadcast to play emergency announcements.

A *.png can be selected when setting the “Lock image path”.

If the “Lock image path” is available and “Use default lock image” is checked, the lock image of the ETCS will be updated after the configuration is uploaded.

The recommended size of the lock image is 480 x 775 pixel (width x height).



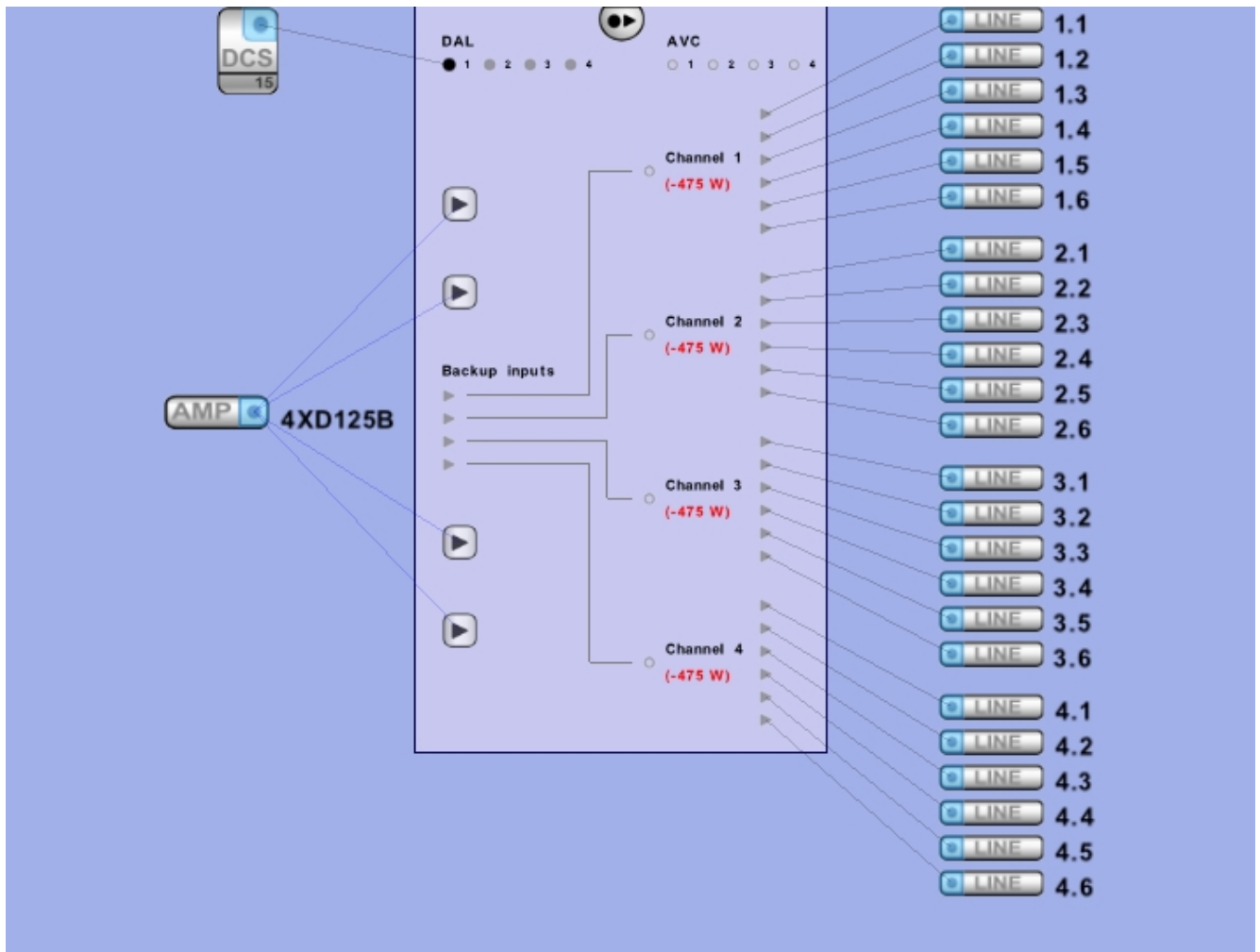
The ETCS does not support the transport line function. This means that ETCS cannot receive contact output from other control units or ETCS and cannot send contact output to other control units or ETCS.

5.3.4 Call Station (DCS)

Symbol:



The call stations DCS15, DCS2, DCSF1, DCSF7 and DCSF12 are connected to the control unit via the DAL bus. Detailed settings can be configured for a call station in the properties window. Differences between the individual types exist in the varying number of keys / functions and additional audio inputs.



DCS 15	
Name	
General	
Key cover flaps (qty)	0
Wall box	<input type="checkbox"/>
Surface mounting kit	<input type="checkbox"/>
Monitoring	
Microphone monitoring	<input checked="" type="checkbox"/>
DAL monitoring	<input checked="" type="checkbox"/>
Key Lock	
Key Lock	<input type="checkbox"/>
Number of keys	4
Connection type	
Connection type	Copper
Set default values	
Close	

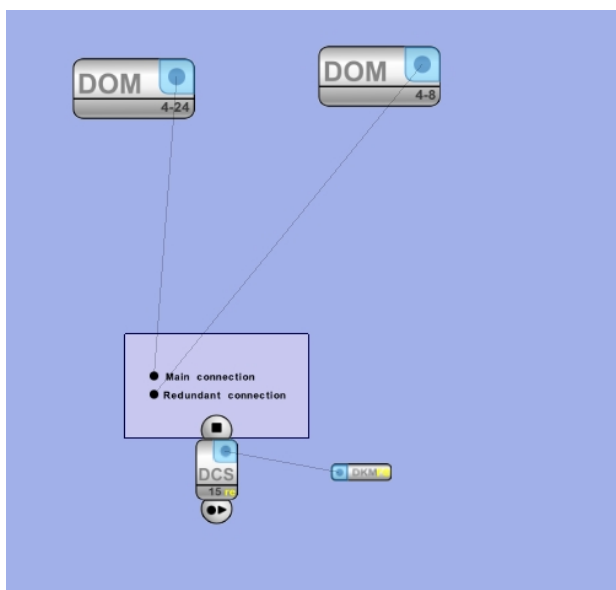
Key covers for alarm buttons as well as a wall box or a surface mounting kit can be selected.

The microphone and DAL monitoring can be enabled or disabled in the "Monitoring" chapter. This is required for two-way call stations. In order to prevent unintended triggering of keys (e.g. alarms), up to 9 keys on the call station can be locked under "Key lock" (only DCS15 or DCSF12).

Enabling is possible during operation using the keys 10-12.

To do this, the buttons must be pressed and held in the following order: Button 11 (middle button), button 10 (left button), button 12 (right button).

Under "Connection type" a fibre-optic connection must be specified if the call station is more than 300 m away from the control unit.



Call stations DCS2 and 15, DCSF1, 7 and 12 are also available as redundant versions (.RE). These can be connected with two control units.

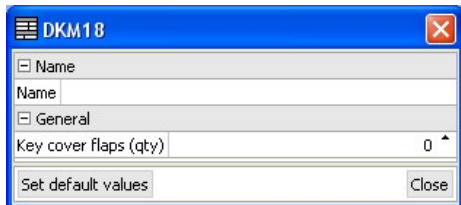


- For a complete redundant configuration, the complete functionality of the call station must be replicated in configuration mode. For this purpose each redundant call station has two key LED areas (see chapter 6.8).
- The configuration of the main and redundant connections must correspond to the actual cabling.

5.3.5 Digital Key Module (DKM)

Symbol: 

The DKM18 is a button extension module for call stations. A maximum of 6 of these modules, each with 18 buttons, can be connected to a DCS.



In the DKM properties window you can set the desired number of cover flaps (relevant only for the parts list).

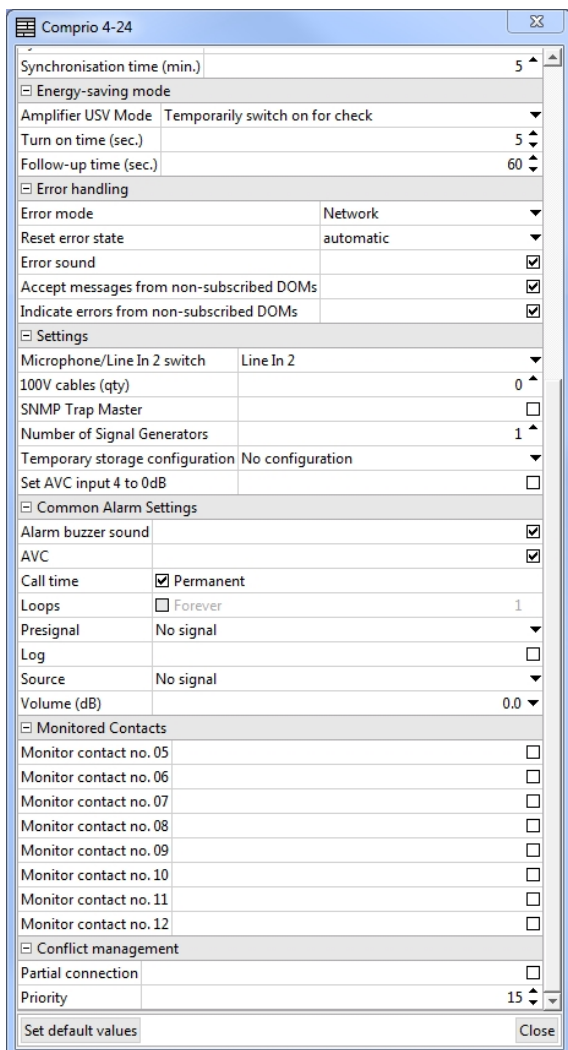


The redundant DKM18 must be used in connection with the redundant call stations (.RE).

5.3.6 Universal Interface Module (UIM)

Symbol: 

The UIM is contained in the Comprio.



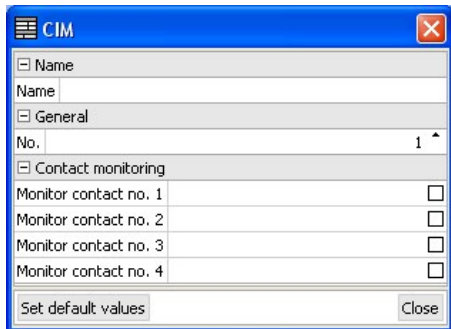
Monitoring settings, the required cable and connection type as well as an object name can be entered in the properties window.

Monitoring of the last 8 contacts for short-circuit and interruption can be activated here.

5.3.7 Contact Interface Module (CIM)



The CIM extends the control contacts of the control unit to add 8 programmable inputs / outputs. Four of these inputs / outputs are monitored internally. The CIM is connected directly to the control unit.



Number must match the jumper setting on the CIM.

Not set = No. 1

set = No. 2

The monitoring for the specific contacts can be enabled / disabled in the properties window.

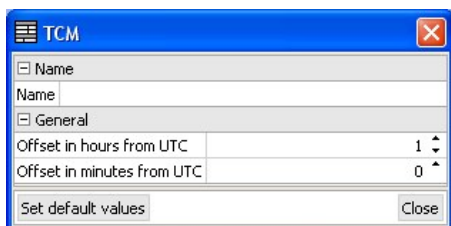
5.3.8 Time Control Module (TCM)



The TCM handles the time synchronisation of the VARIODYN® system via GPS (Global Positioning System) and requires the hardware TCM-GPS set with receiver, antenna and adapter cable.

A control unit synchronised with the TCM-GPS (Time Control Module GPS) distributes the exact time to all other networked control units. This allows precisely timed, automated announcements (e.g. the break bell in schools), time-based volume adjustments (e.g. lowered volume at night in train stations) or simply accurate time stamps for the logging of announcements and malfunction messages.

Both failure of the module and loss of the satellite signal are reported. The TCM is connected directly to the control unit.



The time offset of the current location from Coordinated Universal Time UTC (Universal Time Coordinated) can be set in hours and minutes in the properties window.

In order to ensure synchronisation in the D1 network, the control unit to which the TCM is connected must be set to time synchronisation master (see control unit Properties).



A TCM and a CIM cannot be operated at the same time on one control unit.

5.3.9 Network Time Protocol Server (NTP Server)

Symbol:



The NTP server object allows time synchronisation of the VARIODYN® system over the network. This requires that an NTP time server be connected to the VARIODYN® network. An interruption in the time server connection or the absence of a time server is reported. The NTP server object is simultaneously connected directly to one or more control units (each control unit synchronizes individually).

NTP Server	
Name	
Name: NTP	
General	
Offset in hours from UTC	1
Offset in minutes from UTC	0
Interval (minutes)	60
IP address	192.168.1.100
Set default values	
Close	

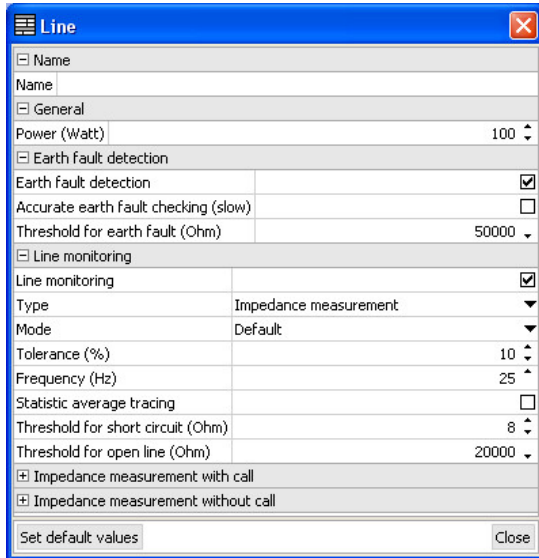
The time offset of the current location from Coordinated Universal Time (UTC) can be set in hours and minutes in the properties window. Interval specifies the amount of time between querying of the time server.

The IP address of the time server must be set.

5.3.10 Speaker Line

Symbol: 

In the speaker line properties dialog, settings can be configured for the selected speaker line.



The power specified here is only for information and calculation of the total power per amplifier channel. It is not relevant for the functionality of the system. If the accurate earth fault checking is activated, a detailed measurement is performed even when no earth fault exists ($> 50 \text{ kOhm}$). The detection threshold can be changed here. When line monitoring is enabled, it is possible to choose between different types. If no EOL module is connected, impedance measurement must always be selected. If an EOL module is present, this must be selected alone (for use of 100 V amplifiers) or in combination. It can be configured under "Mode" to take measurements only during playback of an audio signal or only while no audio signal is playing.

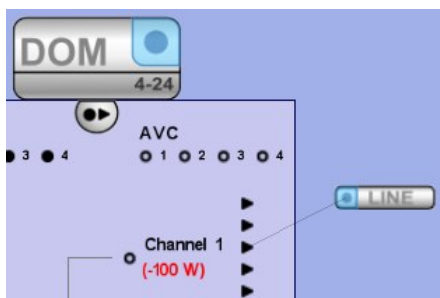
Tolerance indicates the size of a change in the impedance value that should be registered as an error.

If "Statistic average tracing" is activated, higher fluctuations in the line (e.g. due to a bad connecting cable) are taken into account.

Detection thresholds for the short circuit and open line can also be changed here.



- The measurement algorithms can be - only adjust these settings after consulting with technical support changed in the chapters "Impedance measurement with call / without call" (incorrect entries can result in malfunctions).
- Activation of the average tracing and the precise earth fault measurement can result in an error detection time > 100 seconds, which does not comply with the standard.

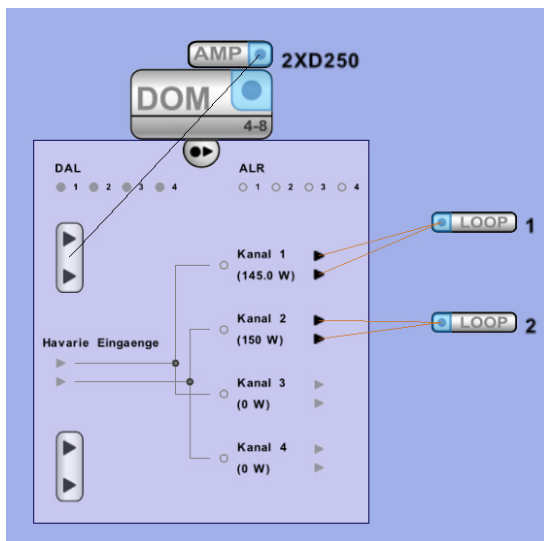


If the power of the combined lines exceeds that of the associated amplifier, it will be represented as a red negative value in the additional connection control of the control unit $>\text{DOM}<$.

In the example shown here, a load of 300 W is applied to the 200 W amplifier; in other words, the load is too high by 100 W.

5.3.11 Loudspeaker ring loop (Loop)

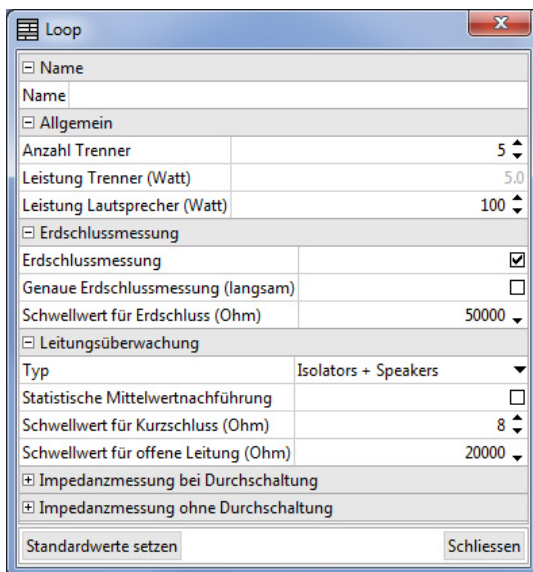
Symbol: 



Speaker loops are always (automatically) connected to 2 output relays of an amplifier channel.

A maximum of 4 speaker loops can be connected to a single control unit >DOM<.

In the Properties dialog for the loop, settings can be configured for the selected speaker loop.



The specified quantity of isolators (LIM – Loop Isolator Module) is very important and must match the number of isolators actually connected to this loop.

The performance of the isolators is fixed and can be calculated using the specified quantity.

The speaker power specified here is only for information and calculation of the total power per amplifier channel and it is not relevant for the functionality of the system.

If the accurate earth fault checking is activated, a detailed measurement is performed even when no earth fault exists (> 50 kOhm).

The detection threshold can be raised above the threshold.

For line monitoring, it is possible to switch between pure isolator monitoring, speaker monitoring, or isolator and speaker monitoring (default).

If “Statistic average tracing” is activated, higher fluctuations in the line (e.g. due to a bad cable) are taken into account.

Detection thresholds for the short circuit and open line can also be changed here.



- The measurement algorithms can be - only adjust these settings after consulting with technical support - changed in the chapters “Impedance measurement with call / without call” (incorrect entries can result in malfunctions).
By selecting simple mode, the loop can be started up without reading in the impedance.
- An incorrect quantity of isolators can result in malfunctions during start-up. The “Advanced” section contains additional parameters that affect the LIMs. Note: These should only be changed after consulting with the hotline.
Activation of the average tracing and the precise earth fault measurement can result in an error detection time > 100 seconds, which does not comply with the standard.

5.3.12 Main Switching Unit (MSU)

Symbol:



MSUs can be added to the project window as often as necessary in order to ensure a complete parts list. No other settings are available for configuration.

5.3.13 Rack

Symbol:



Racks can be added to the project window as often as necessary in order to ensure a complete parts list. The corresponding number of rack units can also be set.

5.3.14 Amplifier (PA)

Symbol:



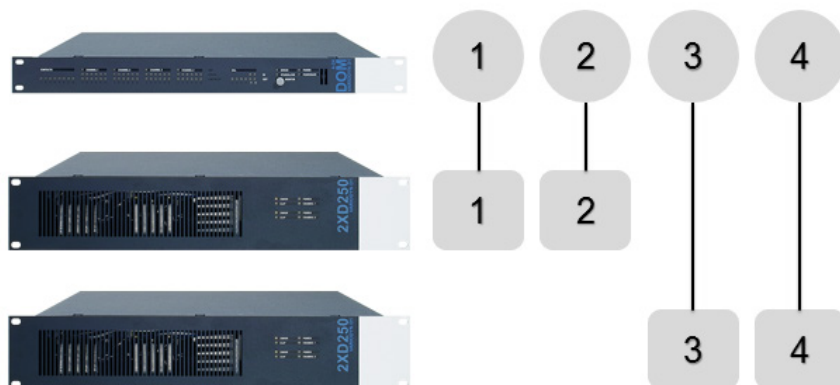
The available amplifier types are XV, XH or XD with different output power and these are connected to the control unit via the connection symbol.

In the properties window of the amplifier, a name can be entered and the exact type (watts) specified. The amplification is the nominal amplifire power. In the case of 100 V systems, this is always 42.2 dB. In the case of 70 V or 50 V amplifiers, this must be lowered accordingly.

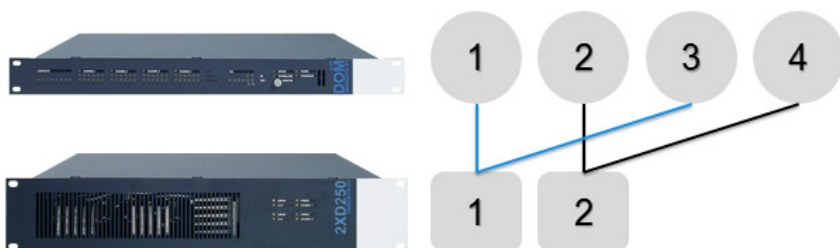
The tolerance limit indicates the minimum level of deviation from the specified amplification at which the amplifier is registered as defective.

The connection type can be selected via the properties window of the amplifier. Possible connection types are:

- "normal": amplifier channels 1-4 are connected to DOM channels 1-4

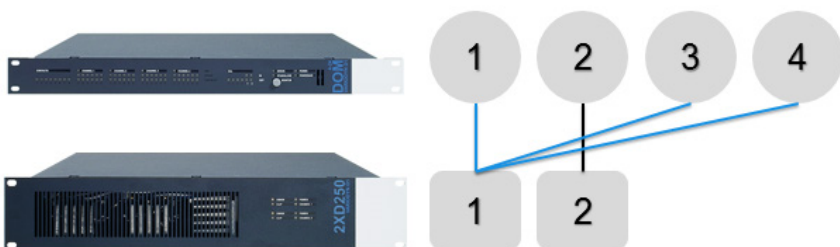


- "2-12": amplifier channel 1 is connected to DOM channel 1 + 3, and amplifier channel 2 is connected to DOM channel 2 + 4



- "1-18": amplifier channel 1 is connected to DOM channel 1, 3 + 4, and amplifier channel 2 is connected to DOM channel 2. In this configuration, the channel can be used as a backup channel for other amplifiers in the system, for example.

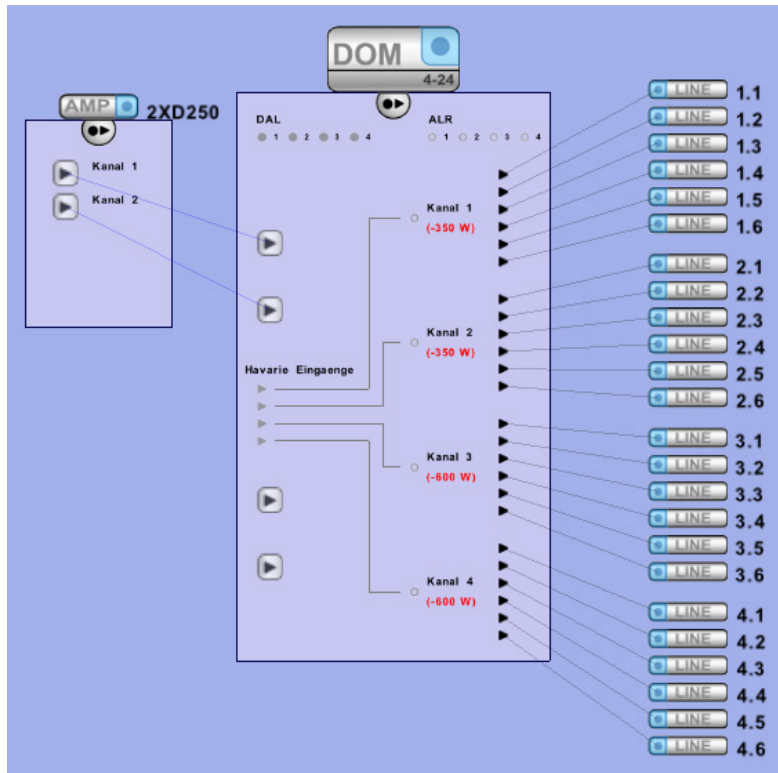
In the case of amplifiers 4XD125B and 4XD250, channel 2 can be used as a backup amplifier for other amplifiers and channels 1, 3 + 4 of the same amplifier can be used.



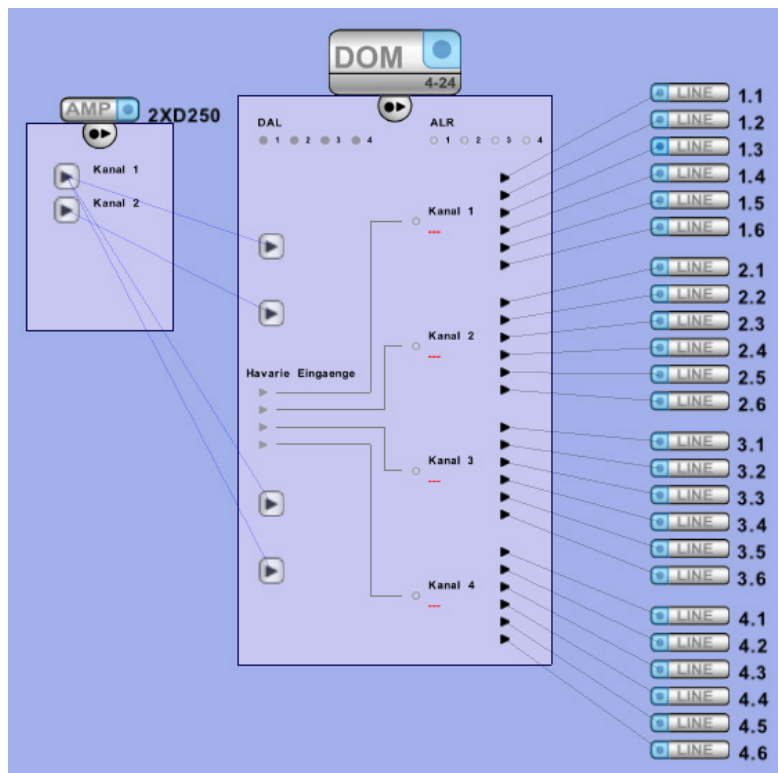
For each connection type, the configuration must be adjusted **and** the appropriate output cable for the amplifier must be selected! (see Installation Instruction 798663.GB0).

After selecting the connection type, the amplifier can be connected to the DOM via the connection icon. This automatically creates the required connections between the amplifier channels and the DOM channels:

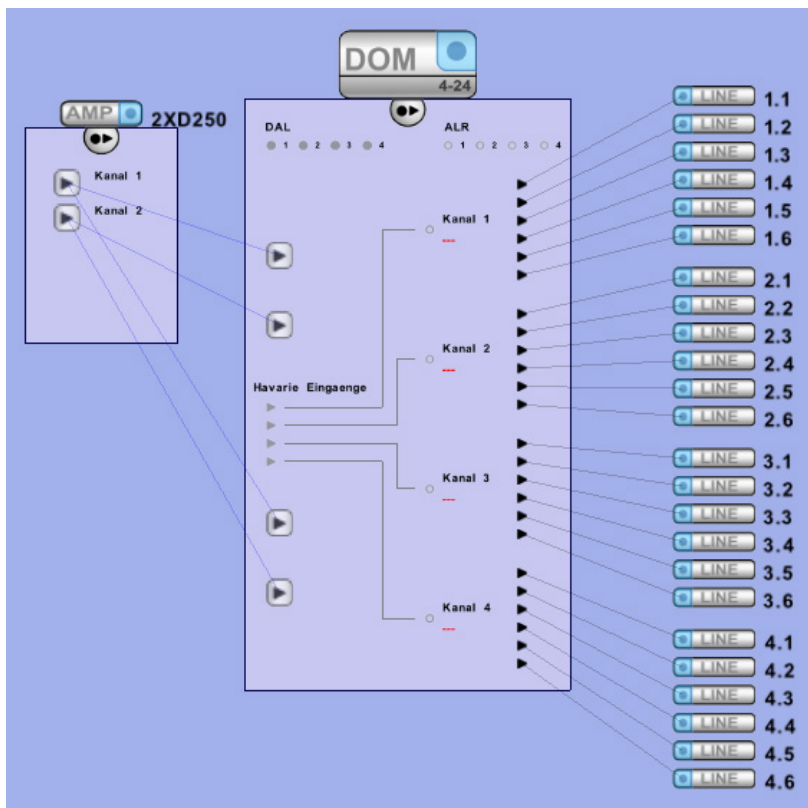
- „normal“:



- „2-12“:



- „1-18“:



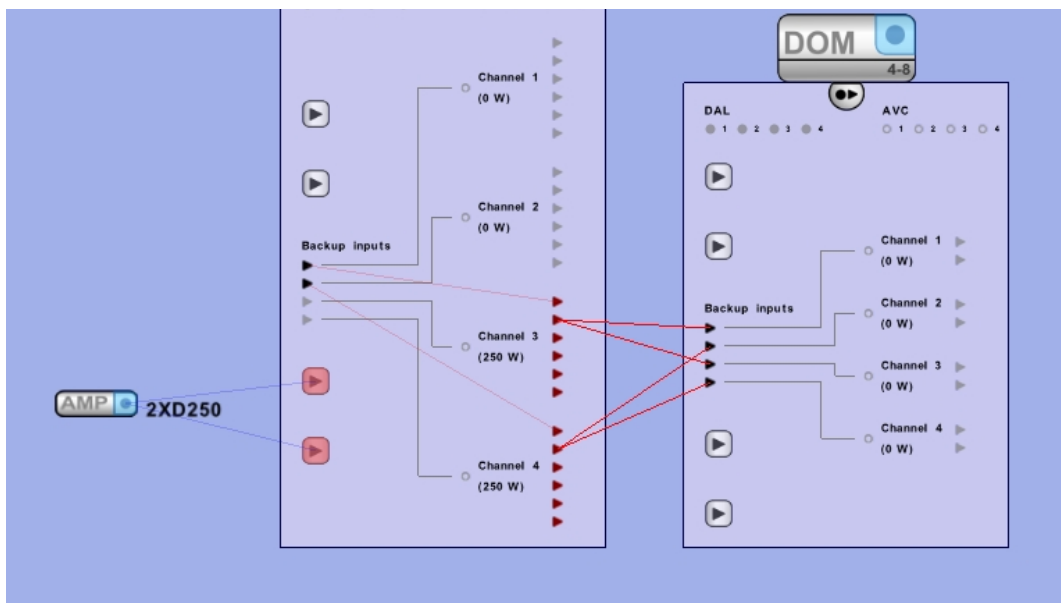
During the configuration of the calls, consider that all lines which are on an amplifier channel cannot be activated simultaneously with different signals.

5.3.15 Replacement Amplifiers

Optional replacement amplifiers can be used to protect the VARIODYN® D1 system from failures. If the failure of a power amplifier is registered, the replacement amplifier takes over the affected 100 V speaker lines. The volume of the faulty power amplifier is applied to the replacement amplifier. When the power amplifier is again ready for operation, the speaker lines are automatically transferred back. If multiple amplifiers are defective at the same time, the priority order is used to determine which power amplifier is replaced.

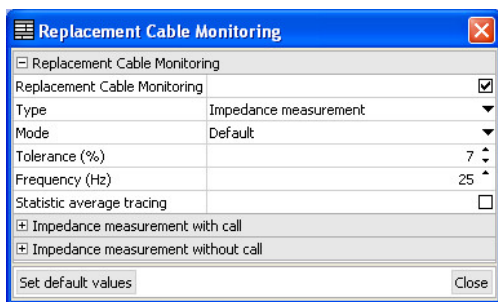
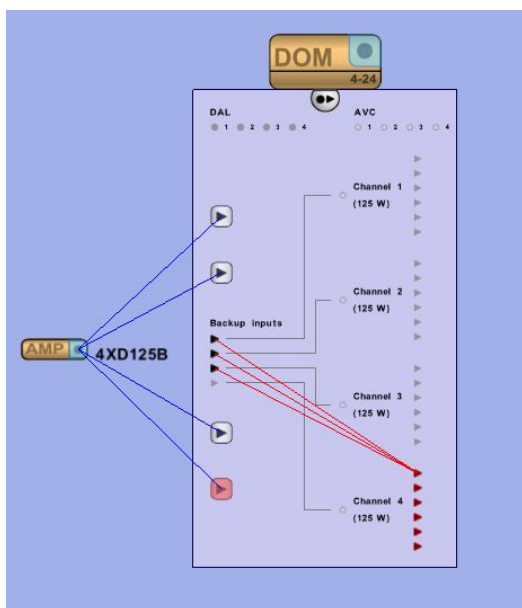
Each power amplifier used can be configured as a replacement amplifier, both locally and across multiple control units. It should be noted here that 2 power amplifiers cannot be replaced at the same time by a single replacement amplifier and the replacement amplifier must provide the same or more power as the most powerful amplifier. Special connector cables are available for these applications.

To make an amplifier into a replacement amplifier, the connection control of the control unit >DOM< must be opened and the amplifier symbol of the respective amplifier must be clicked. The symbol and the relays turn red to indicate this. The relays can then be connected to the backup inputs of the same (internal) or another (external) control unit >DOM<.



Different channels must always be connected so that one power amplifier (two channels) is completely replaced.

The 4XD125B- or the 4XD250B Amplifier are suitable for a 3:1 redundant operation mode.



The system also has a function for monitoring the backup cables for short circuits or open circuits. This backup cable monitoring is automatically active.

In special cases, it may be necessary for settings to be changed or for the monitoring to be completely deactivated (only do so after consultation with technical support).

The properties can be loaded by right-clicking on one of the backup connections (red lines).




Each power amplifier may only have one backup amplifier, although the backup amplifier may act as backup for multiple amplifiers.

Example:

A backup amplifier connected to a DOM4-8 can act as backup for a maximum of 2 control units (or a maximum of 1 control unit and its own power amplifier).

A backup amplifier connected to a DOM4-24 can act as backup for a maximum of 6 control units (or a maximum of 5 control units and its own power amplifier).

5.3.16 FACP Connection

Symbol: 

Required for a serial connection to an ESSER fire alarm system. Connected directly to a control unit.

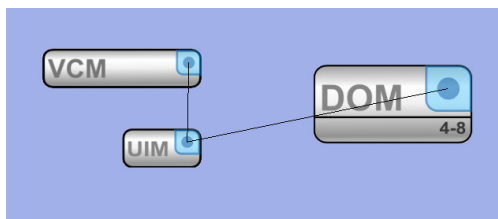


This function is optionally available with the VARIODYN® D1 Comprio.

5.3.17 View Control Modul (VCM)

Symbol: 

The VCM is a module for cabinet installation and makes available additional collective messages and operating elements for the VARIODYN® D1 system.



It is connected directly with the UIM, whereby 12 control contacts on the UIM are used.
For a detailed description of the configuration, see the chapter "View Control Module Configuration".

5.3.18 Host-object

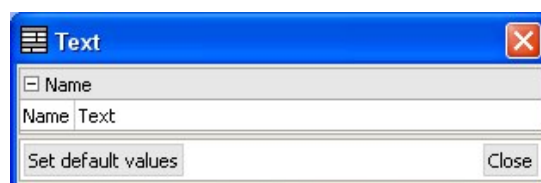
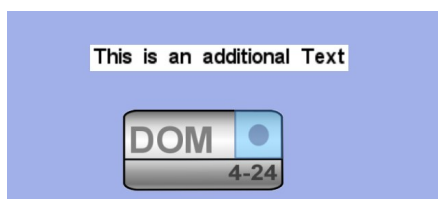


The host object can be used for configuration of the PAMMI software. Input and output contacts can be dragged onto the host object.

The host object requires the IP address, system number and device ID of PAMMI Plus.

5.3.19 Text Object

The name can be changed in the properties window. The text object is used to add additional labels.



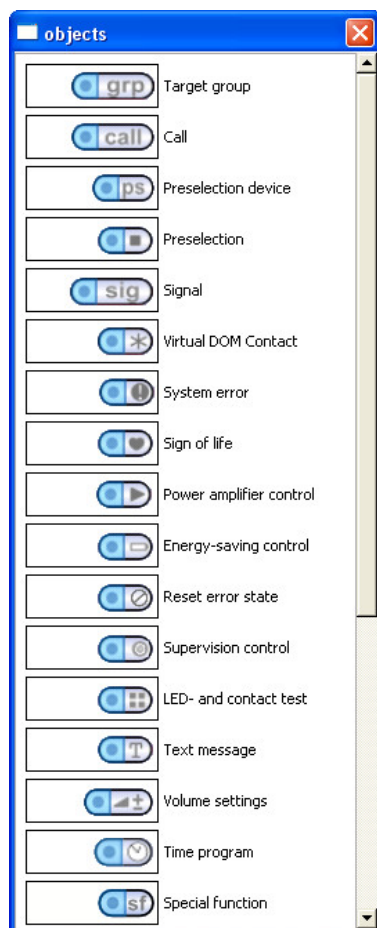
5.4 Basic Functionality

5.4.1 General Information



The basic functionality of a VARIODYN® D1 system is defined in configuration mode and then loaded onto the system. This includes the creation of calls, preselect stations, speaker zones, error outputs and text messages and adaptation of the buttons of a call station or contacts of a UIM.


Objects

All software functions of a VARIODYN® D1 system are found in the object list of the configuration interface.



Object connections

In configuration mode, the connection lines are used to link specific calls with buttons or contacts as well as the line inputs and outputs, the microphone and any other outputs (speaker lines, DCS speaker) and target groups. This requires use of the additional controls for the individual objects, which can be opened with the symbols  and .

To connect objects together, click on the connection symbol  of an object. The new connection line can then be connected to the connection symbol of another object, or the connection attempt can be cancelled by pressing the ESC key or the right mouse button.



Further informations about object connections or additional controls, see Installation Instruction (Part. No. 798663.GB0 or 798667.GB0).

Inverting functions

The "Inverted" setting is also available in the properties dialog for many objects. This setting serves to switch the triggering or output between normally closed and normally open.

For functions that can be triggered externally via a contact, e.g. on the UIM, it is possible to define here whether the function should be triggered upon closing (default setting) or opening (inverted) of the contact.

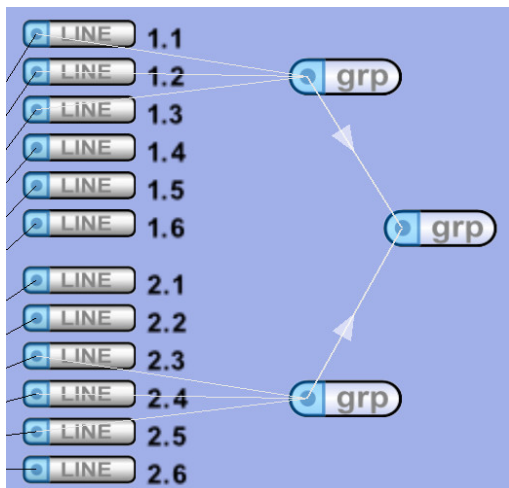
For functions that switch something externally via a contact, it can be defined here whether upon activation of the function (e.g. system error) the contact should be closed (default setting) or opened (inverted).



During the start-up sequence of the VARIODYN® D1 / VARIODYN® D1 Comprio - e.g. because shortly interrupted from primary and secondary power supply or with activating the "reset" function - it could be happening, that configured inverted output contacts are changing shortly their status. Be aware that this fact can influence the process control chain and maybe activate procedures like to start a clearance alarm of the building.

5.4.2 Target Group

Symbol:



Using target groups, it is possible to collect speaker lines or previously created target groups into zones that can be made available for calls or preselections. It is recommended that unique names be assigned to the individual groups to ensure that they are easy to identify.

When linking target groups to each other, the correct hierarchy must be observed. Connections must always point from the lower-order to the higher-order target group.

A target group can be connected to a preselection or a call to define the group as a target.

The target group can also be connected to an ETCS and are visible on the "Target Group" page of that ETCS. Max. number of target groups for each ETCS = 100.

For special applications (e.g. PAMMI Plus software) in which fixed group numbers are required, these can be set for each group in the dialog under "Advanced".

This setting should only be changed by experienced users.

This adjustment should only be performed by qualified experts.

Target group info is enabled when a target group is a target group of an ETCS.

"ETCS users" sets permissions for viewing this target group.

Clicking "Edit" opens a window to select "ETCS users".



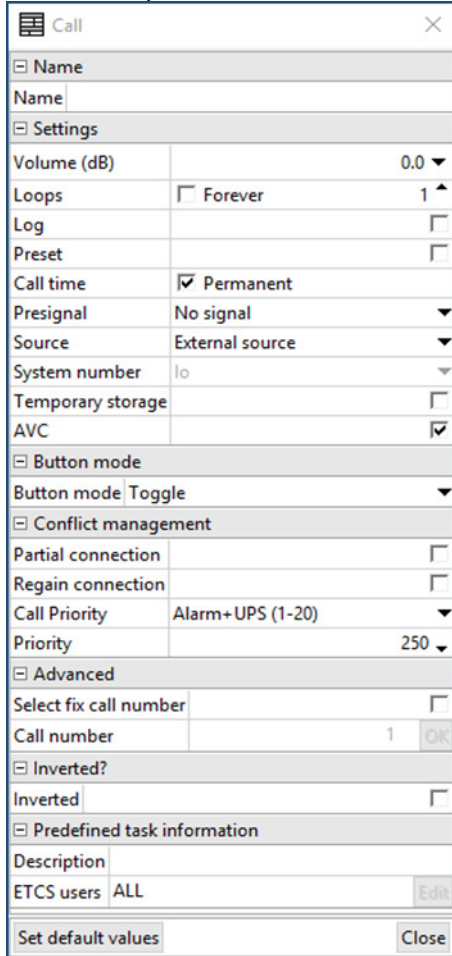
When a target group is used for ETCS, it is recommended to set a recognizable name for that target group to find it easily on the ETCS interface.

5.4.3 Call

Symbol: 

A call refers to any connection of a signal source to one or more targets. Such calls can be freely programmed in the VARIODYN® D1 system. This means that any signal source (call station, alarm announcement or music) can be connected to any 100 V speaker line or audio output (DCS, UIM). Any available button of a call station, contacts on a UIM or a time program can be used to start or end calls. A signal source must be assigned to every call. This could be any call station, any audio input (e.g. for CD players) or any internal audio signal (gong, alarm signal, alarm text, etc.) in the system.

All relevant parameters of the individual calls can be configured in the properties window.



The configurable volume is relative to the base volume of the respective source (microphone, signal or line) and is applied for as long as the call runs.

The loops setting indicates how often a text from the voice recording memory should be repeated (only available for finite texts).

The call can be logged to the message list.

Preset indicates that this call is automatically activated upon booting of the system.

The connection time of a call can be limited, for example to end it automatically after a period of time if someone forgets to stop it.

A specific presignal can be selected.

In the "Source" dropdown menu, it is possible to select either an internal alarm signal (see Appendix Internal Audio Signals) or an individual signal from the flash memory, if this was already uploaded to the control unit (see chapter Loading Files into the Internal control unit Audio Memory).

If "No signal" (default) is selected here, a connection to an audio source of a DCS (microphone) or a UIM (line in) can subsequently be created.

These are settings for the internal collective alarm call of the installed VCM board.

It can be selected in the "System number" field whether the pre-signal and source refer to the signal generator of the local control unit or to a remote control unit.

Temporary storage can be activated for this call (see chapter "Automatic Temporary Storage").

If the automatic volume control (if available) should not be applied to this call, this checkmark must be unchecked, e.g. for alarm announcements.

The button mode defines the manner in which the call is activated. "Press" means the call is active for as long as the trigger (e.g. button press) is active. "Toggle" means the call is activated with one press of the button and deactivated again upon the next press.

For special applications (e.g. manual source assignment) in which fixed call numbers are required, these can be set for each call in the dialog under "Advanced".

This adjustment should only be performed by qualified experts.

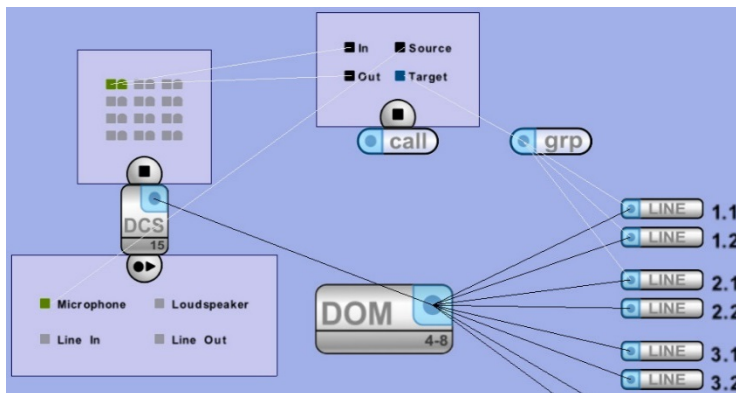
When conflicts occur with regard to the signal source or target of calls, the call with higher priority is always given preference. There are two configuration options in the conflict management that define how the call with the lower priority behaves in the system.

Partial connection inactive, regain connection active	The call is completely interrupted in event of any conflict. After the end of the conflict, the interrupted call is reconnected to its targets.
Partial connection active, regain connection active	The call is only interrupted at the targets where conflicts exist. After the end of the conflict, the interrupted call is reconnected to its targets. (Example: Background music)
Partial connection active, regain connection inactive	The call is only interrupted at the targets where conflicts exist. After the end of the conflict, the interrupted call is <u>not</u> reconnected again to its targets. (Example: Live announcements since restoration of the connection during short speaking pauses is not desired)
Partial connection inactive, regain connection inactive	The call is completely dropped.

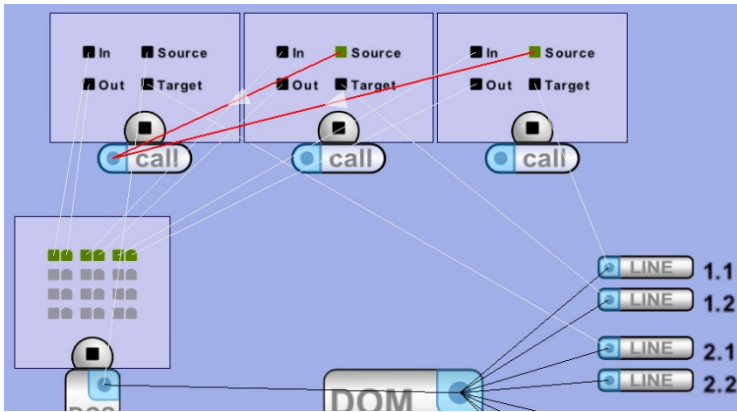
There are 3 priority classifications. In addition, individual priority values can be assigned within these classifications. 1 is the highest, 255 the lowest priority.

Alarm + UPS	Calls put the system into alarm mode and can also be activated in energy-saving mode. (Example: Evacuation alarm). In this case, the alarm volume is used (see Audio Settings).
UPS	Calls can also be activated in energy-saving mode. (Example: Paging)
Normal	Calls cannot be activated in energy-saving mode or are ended. (Example: Background music)

Next, the call must be assigned a button or a contact as trigger input. The target can either be fixed in that an output or a target group is directly linked to the call or it can be a preselect station. Any audio input (microphone, line in, etc.) is available as source.



The "In" function is always the trigger (e.g. a button on a call station or contact on a UIM); the "Out" function represents the external acknowledgement by the system (e.g. whether it is possible to speak). This can be connected to an LED or an output contact.



Calls can also have another call as source. The source call is then the only one connected to the “real” source (e.g. line input). In this case, these calls belong together and have the same source and can use the same source simultaneously. This allows the source to be connected to or disconnected from various targets using these buttons / contacts.

(Example: For background music or sounding of alarms via the FACP)

Most of all settings are copied from the “main call”.

Calls can now be initiated and ended simply under an ETCS, an ETCS DKM, a predefined task of an ETCS, or a schedule. However multiple source of Call is not available on ETCS.

If the source is connected to an ETCS, in the “Presignal” dropdown list, it is possible to select either an internal presignal (Gong 1, 2, or 3) or an individual presignal from the audio-database.xml (Channel 31 - Title 4, Channel 31 - Title 5 ... Channel 31 - Title 28) (refer chapter “Uploading ETCS audio files”).

If the trigger is from an ETCS or an ETCS DKM plus, the “Button mode” only can select “Toggle”, with “Preset”, “Temporary storage”, “AVC”, and “Advanced” being disabled.

“Predefined task info” is enabled when a call is a predefined task of an ETCS (refer chapter “Predefined task”).

“ETCS users” sets permissions for viewing this call on the predefined page of the ETCS. Clicking “Edit” opens a window to select ETCS users.



When a call is set as a predefined task for ETCS, it is recommended to set a recognizable name for that call to find it easily on the ETCS interface.

5.4.4 Preselect Station / Preselection

Preselect station symbol:

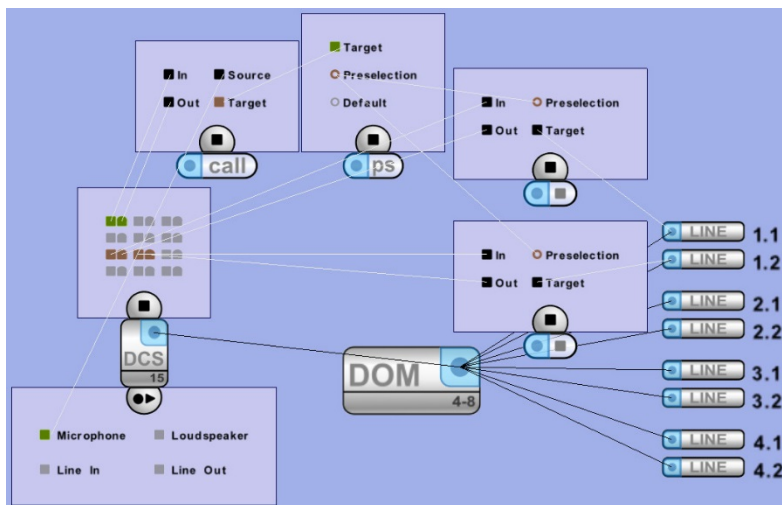


Preselection symbol:

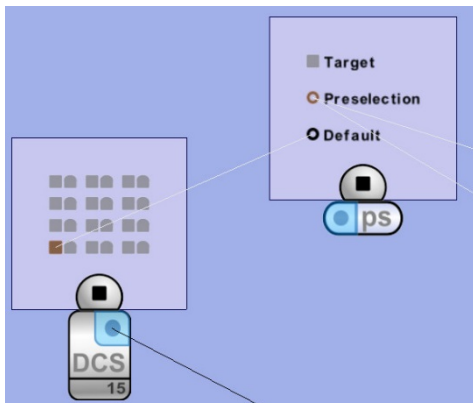


Preselect stations make it possible to select specific targets before starting a call. A preselect station consists of multiple preselections (any quantity may be selected) and can be used by one or more calls.

If a preselection is active, the associated target will be activated in the event of a call. It is also possible to activate multiple preselections, and therefore multiple targets, at the same time. Querying of the active preselections takes place at the time the call is activated. Subsequent changing of the preselections therefore has no effect on calls that are already active.



The preselect station is the higher-order object and collects together preselections (individual targets associated with buttons). The preselect station itself is the target of the desired call.



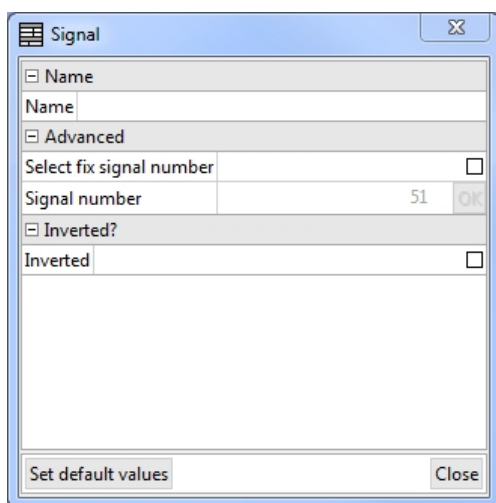
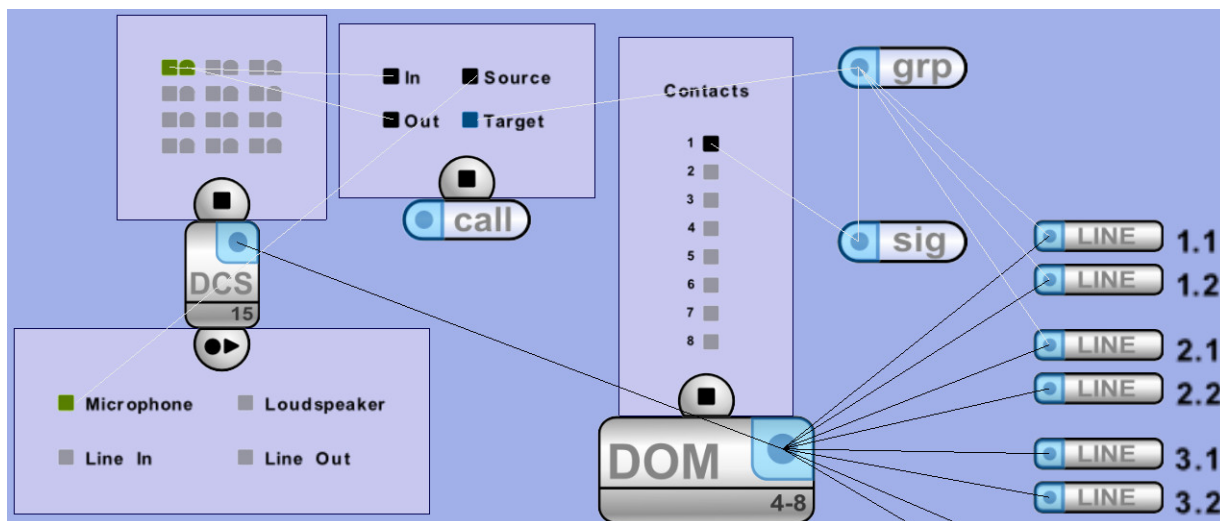
If the default function is associated with a button, this is set as default button for the preselect station. If this button is pressed, the states of all associated preselections are set according to the respective setting. This function is normally used for quick deletion of the preselections by deselecting the default function for all preselections.

If this preselection should be set to “active” upon pressing of the default button, the checkmark must be set. To lock a button as default button, the “Default” connector of the preselect station must be connected to it. Each preselection also has a setting for the button mode (press / toggle).

5.4.5 Signal

Symbol:

The signal object represents a virtual line relay and can be used for additional switching of a contact (target contact) with a call (e.g. for emergency priority relay).




If it is added to a group, the specified contact (connection: contact - signal) is switched together with the group lines. In the properties window, the contact can also be inverted (default open / closed). Similarly to with calls and groups, a fixed number between 51 and 98 can be given to a virtual circuit relay.



The number of signals per control unit and therefore the number of switchable contacts is limited to 48. This number applies to the control unit and every connected UIM / DCS. A message is output if the maximum number has been reached.

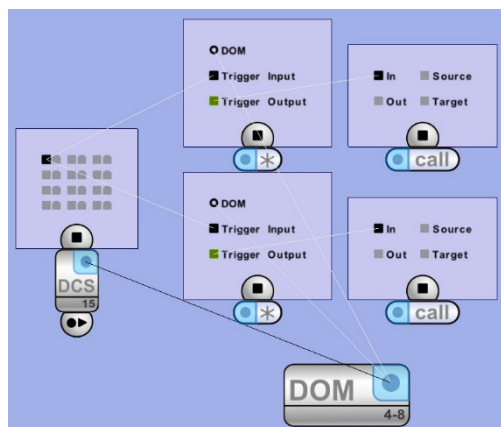
5.4.6 Virtual DOM Contact

Symbol: 

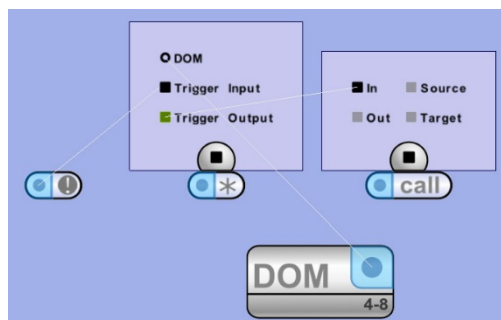
The virtual DOM contact allows the linking of functions or forwarding of functions between control units even if the functions are not normally available between control units.

If the trigger input of a virtual DOM contact is activated, its trigger output is also activated.

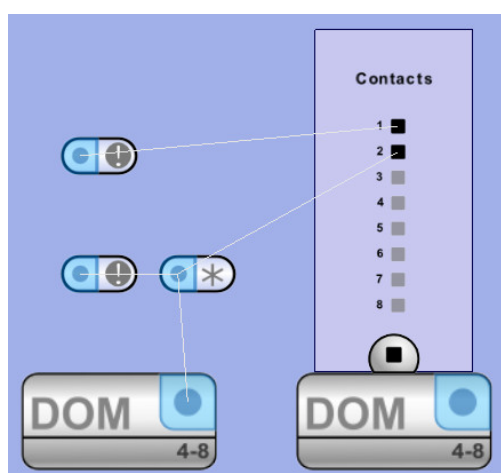
Examples for possible applications:



Starting of 2 calls with a single button press or input contact.



Starting of a call triggered by an internal error state.



Output of a system error to another control unit.



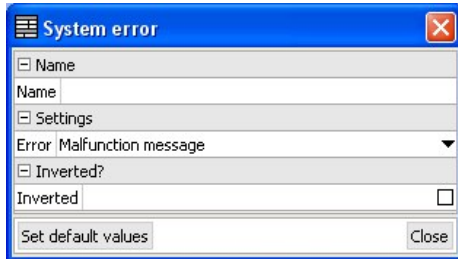
Every virtual DOM contact must also be connected to a control unit to specify which control unit it is associated with.

5.4.7 System Error

Symbol:



The system error object sends an internal error status of the control unit to external devices (via output contacts) or to internal functions (via a virtual DOM contact).



The error type can be selected (see table).
The function can also be inverted
(default: open / closed).

Malfunction message	Active when an error occurs in the system. Can only be reset by opening the message list or via the “reset error state” function.
Unacknowledged error	Active when an error occurs in the system. Goes inactive upon opening of the message list or pressing of the monitor button.
Unread message	Active when a new message has been added to the message list. Goes inactive upon opening of the message list.
Local error	Active when an error occurs on the local control unit. Automatically goes inactive once the error has been corrected.
Network error	Active when an error occurs on the control unit network. Automatically goes inactive once the error has been corrected.
System error	Active when an error occurs in the system. Automatically goes inactive once all errors have been corrected.
Microphone / contact error	Active when an error occurs on the microphone of a DCS or contact on the UIM2.0 DAL 1-4. Automatically goes inactive once the error has been corrected.
DAL bus error	Active when an error occurs on the DAL bus 1-4. Automatically goes inactive once the error has been corrected.
Amplifier error	Active when an error occurs on the amplifier 1-4. Automatically goes inactive once the error has been corrected.
Line short-circuit	Active when a short-circuit occurs in a speaker line. Automatically goes inactive once the error has been corrected.
Line open	Active when a break occurs in a speaker line. Automatically goes inactive once the error has been corrected.
Line earth fault	Active when an earth fault occurs in a speaker line. Automatically goes inactive once the error has been corrected.
Line impedance deviation	Active when an impedance deviation occurs in a speaker line. Automatically goes inactive once the error has been corrected.

5.4.8 System Sign of Life

Symbol: 

The sign of life indicates that the control unit is functioning properly by blinking. It can be connected to any output contact of the system.

5.4.9 Amplifier Control

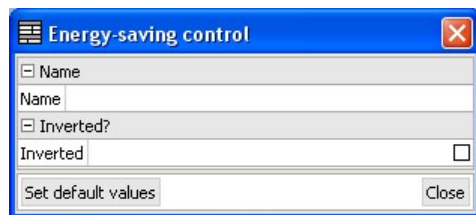
Symbol: 

The amplifier control switches external amplifiers on and off. It adopts a status based on the energy-saving mode function of the control unit. The function can be connected to any output contact of the system.

5.4.10 Energy-Saving Control


Symbol: 

The energy-saving mode of the control unit can be switched on and off via the energy-saving control. It is connected to an input contact of the system which is, for example, connected to the uninterruptible power supply (UPS).

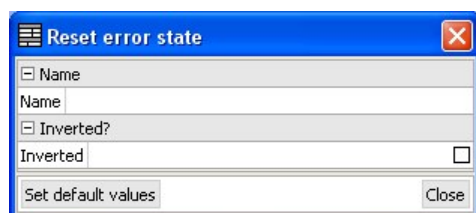


The function can be inverted.
(Default open / closed)
If the project contains multiple control units, one or more control units must be defined as master.
(See chapter Energy-Saving Mode)

5.4.11 Reset Error State

Symbol: 

This function is used to reset an active error message. If the error has not yet been corrected, this is further indicated by the error LED of the control unit.



The function can be inverted.
(Default open / closed)

5.4.12 Supervision Control

Symbol:



The supervision control allows manual or time-based control of the monitoring measures of the power amplifiers as well as the speaker lines. The object can be connected to an input contact or to internal functions via a virtual DOM contact.

The function only applies to the associated control unit. The type of monitoring to control can be selected.

The function can be inverted.
(Default: open / closed)

5.4.13 LED and Contact Test

Symbol:



The LED and contact test function activates all LEDs of a DCS through a specified call station and switches all contacts of the UIM that are programmed as output contacts.

The function only applies to the associated control unit. It is possible to select which DAL bus (call station number) should be tested.

The function can be inverted.
(Default: open / closed)

5.4.14 Text Message

Symbol:



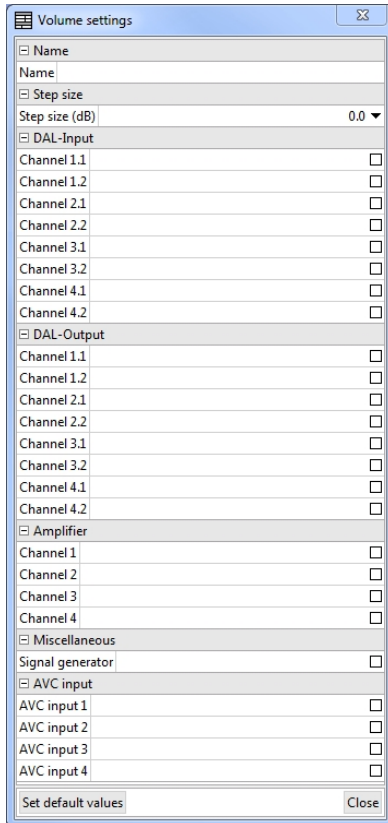
Text messages are entered into the message list upon triggering of the associated input contact. The corresponding checkmark should be set if the VARIODYN® D1 system should indicate an error upon activation and/or deactivation. The text message function can be used for reading error contacts of external devices (e.g. a UPS).

5.4.15 VolumeSettings

Symbol:



Signal sources and audio outputs are controlled with buttons or UIM contacts via the volume settings.



The sign (+/-) of the step size indicates whether the volume of the associated devices should be increased or decreased upon activation (e.g. button press on the call station). The value indicates the amount by which the volume of the specified inputs or outputs should be increased or decreased every time the function is triggered.

DAL-IN shows every available audio input and DAL-OUT every available audio output of the devices connected to the DAL bus. The value before the period indicates the DAL bus; the value after the period indicates the respective input or output.

If a call station is connected to a DAL bus, the respective microphone is x.1 and the line input (if present) is x.2. With regard to the outputs, the speaker is x.1 and the line output (if present) is x.2.

If the device in question is a UIM, the 2 line inputs and line outputs are indicated in the same way.

Channels 1 – 4 stand for the 4 power amplifier channels.

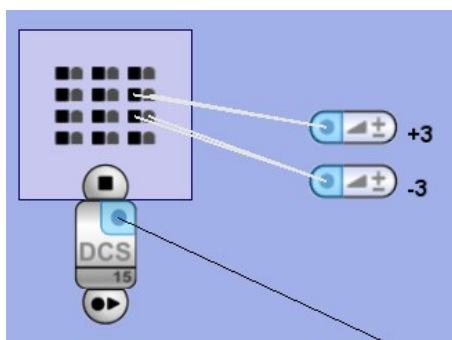
Signal generator stands for all internal audio signals of the control unit. This includes both the 16 individual memory slots as well as the generated alarm signals.

AVC input regulates the volume of the 4 AVC inputs if these are used for additional input sources (microphone, CD). The volume setting has no effect during AVC operation.

The function only applies to the associated control unit. Links to other control units are created via virtual DOM contacts.

Signal sources and audio outputs are now controlled with the predefined task of an ETCS (refer chapter "Predefined task").

To control the volume of the control unit with a predefined task, first connect the volume settings to the predefined task of an ETCS. Then, connect the volume settings to the control unit.

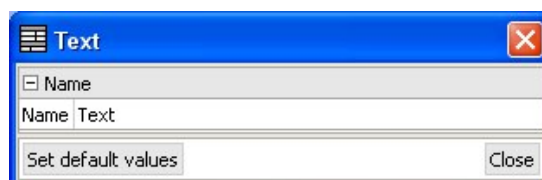
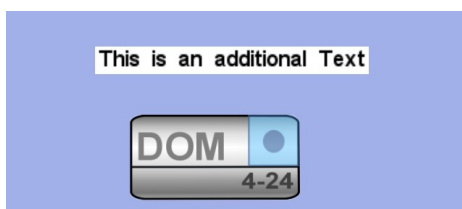


There must always be a + and a – function.

For example, if an alarm volume is configured for amplifier channels, the rule defined here is bypassed in event of calls with alarm priority (see chapter Audio Settings).

5.4.16 Text Object

The text object allows additional labels to be inserted. The name can be changed in the properties window.

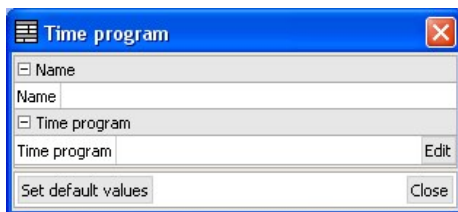
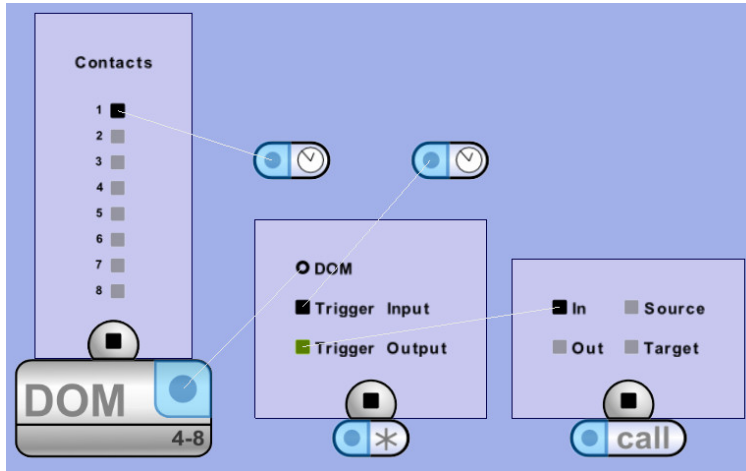


5.4.17 Time Program

Symbol:



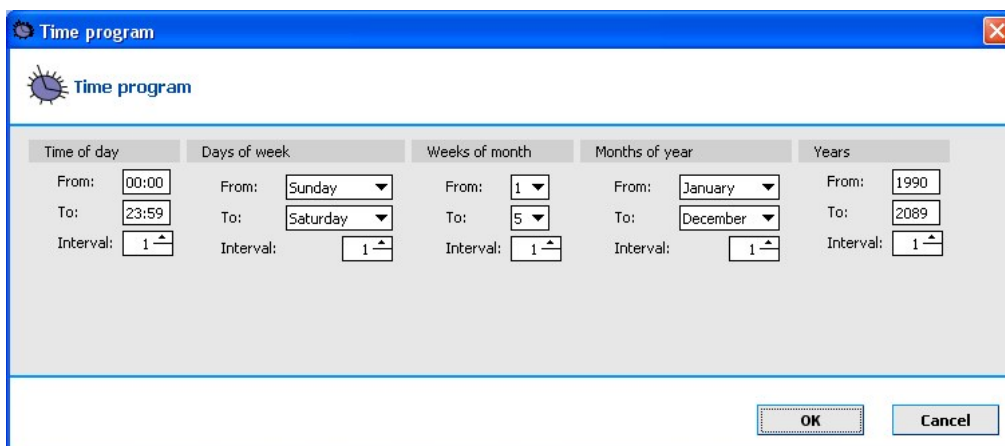
Time programs are used to switch contacts or internal functions (via virtual DOM contacts) based on the time.



A name can be assigned to the time program in the properties window.

Clicking the “Edit” button opens a dialog for entering a range of time as well as specific days, weeks, months and years.

The start and end times of the program within a day must be entered as well as the days of the week, weeks of the month, months and years when the program should be active. The default setting is always active, i.e. from 00:00 - 23:59, on all days, all weeks, every month and every year.



The interval indicates when the time program should be active within the specified period e.g.:

>1< means active over the entire period.

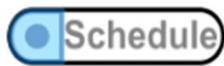
>15< for time of day means that the program is active for one minute out of every 15 minutes during the specified period.

>2< for days means that it is active every 2nd day.

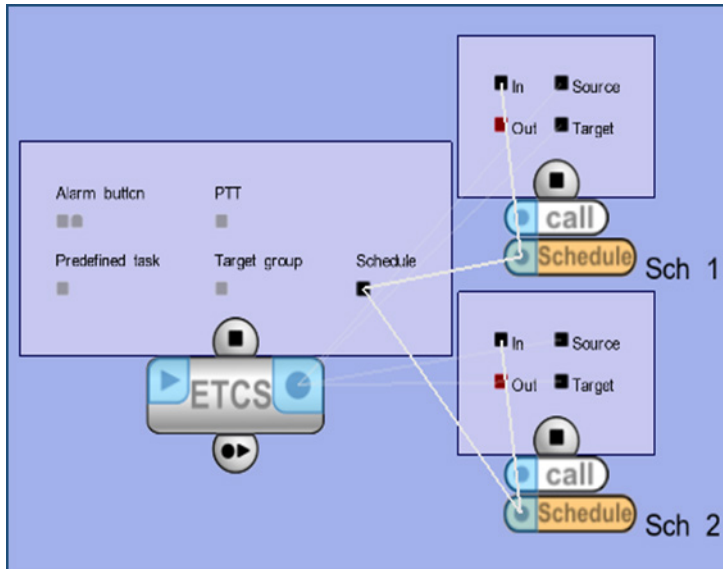
>6< for months means that it is active every 6th month, etc.

5.4.18 Time Program


Symbol:



"Schedule" supports scheduled calls for ETCS.



Add two scheduled calls for an ETCS. On the “Schedule” page of the ETCS, scheduled calls are visible. The max. number of scheduled calls for each ETCS is 50.

 **Schedule** ✕

☐ Name

Name

☐ Start time

Time

☐ Repeat

Repeat Edit

☐ Schedule information

Description

ETCS users Edit

A name should be assigned to the schedule in the properties window.

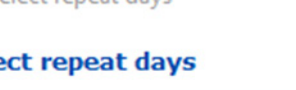
The schedule will be triggered at the start time.

Clicking the “Edit” button on the repeat option opens a window to select repeat days.

“ETCS users” sets permissions for viewing this schedule on the “Schedule” page of an ETCS.

Clicking “Edit” under “Schedule information” opens a window to select ETCS users.

Select any repeat days to schedule. If no days are selected, the schedule will be activated only once.



Select repeat days

Select repeat days

☒ Select / Deselect all

Days of week

☒ Sunday ☒ Monday ☒ Tuesday ☒ Wednesday

☒ Thursday ☒ Friday ☒ Saturday

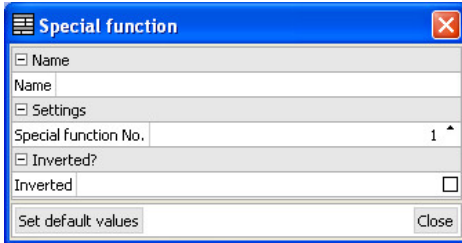
OK Cancel

5.4.19 Special function

Symbol:

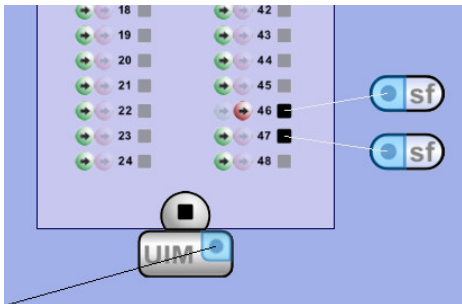


The Special function object allows activation or outputting of special internal functions of the control unit. This function should only be used by experienced users.



The number given here corresponds to the internal function of the control unit that should be activated or output.

The function can also be inverted.
(Standard Open / Closed)



Whether a function is activated or an output initiated depends on whether the object is connected to an input (button, input contact) or an output (LED, output contact).

The following special functions are currently available:

Input functions

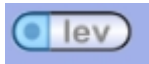
265	Activates an LED test of the control unit front PCB.
266-269	Closing of open isolators (e.g. after short-circuit) of the loop (1-4).
270-277	Global Stat OR1-8 Input
278-285	Global Stat AND1-8 Input
286-309	Switches on/off impedance monitoring LR1.1-LR4.6
310-333	Switches on/off fault to ground monitoring LR1.1-LR4.6

Output functions

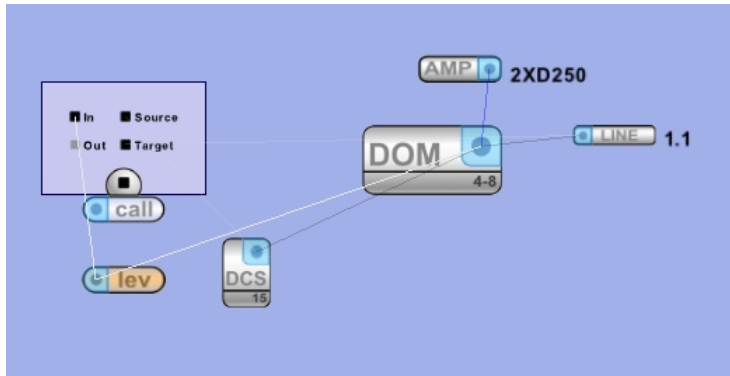
116	Active when a 230 V supply error exists on the control unit.
117	Active when a call with alarm priority is running in the control unit.
118	Active when the control unit is in energy-saving mode.
119	Active when a serial connection error to a fire alarm system exists.
120-123	Active when a call with alarm priority is running at amplifier 1-4.
124	Active when a 230 V supply error exists on the control unit.
130-133	Active when an error exists in a ring loop (1-4).
134-137	Active when a ring loop (1-4) is currently being calibrated.
138	Active when the control unit is in Config mode.
139-146	Global Stat OR1-8 Output
147-154	Global Stat AND1-8 Output
155	Active when time receiver (TC) is faulty
156	Reserved
157	Active when buffer battery is weak
158	Active when system overheats
159	Active when flash memory monitoring detects an error
160-183	Active when an impedance error (Hi/Lo/KS/LL) occurs on line LR1.1-LR4.6
184-207	Active when a fault to ground error occurs on line LR1.1-LR4.6
208-211	Active when the backup for PA1-4 is active
212-215	Active when redundant call station DS1-4 is in backup mode

5.4.20 Leveltrigger

Symbol:



The threshold switching of the control unit can be activated with the leveltrigger object. To do this, select the desired level source from the selection field and set the parameters for activation and deactivation.



To establish an assignment, the leveltrigger object must be connected to the control unit.

The leveltrigger object can be used as an activator of a call, for example, similarly to the key of a call station.

Level Trigger	
Name	
General	
Activation Delay (ms)	0
Activation Level (dB)	-30
Deactivation Delay (ms)	2000
Deactivation Level (dB)	-40
Level Source	DAL 1 Microphone
Inverted?	
Inverted	<input type="checkbox"/>
Set default values	
Close	

The leveltrigger activation depends on the set level and a possible activation delay. These values can be set in the properties dialog of the object.

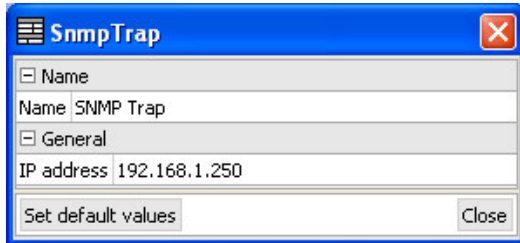
The available level sources appear after the leveltrigger is connected to the control unit. These depend on additional devices connected via the DAL ports.

5.4.21 Simple Network Management Protocol (SNMP)

Symbol:



The SNMP object allows the configuration of an SNMP client (e.g. PC), that should receive SNMP traps from control units.



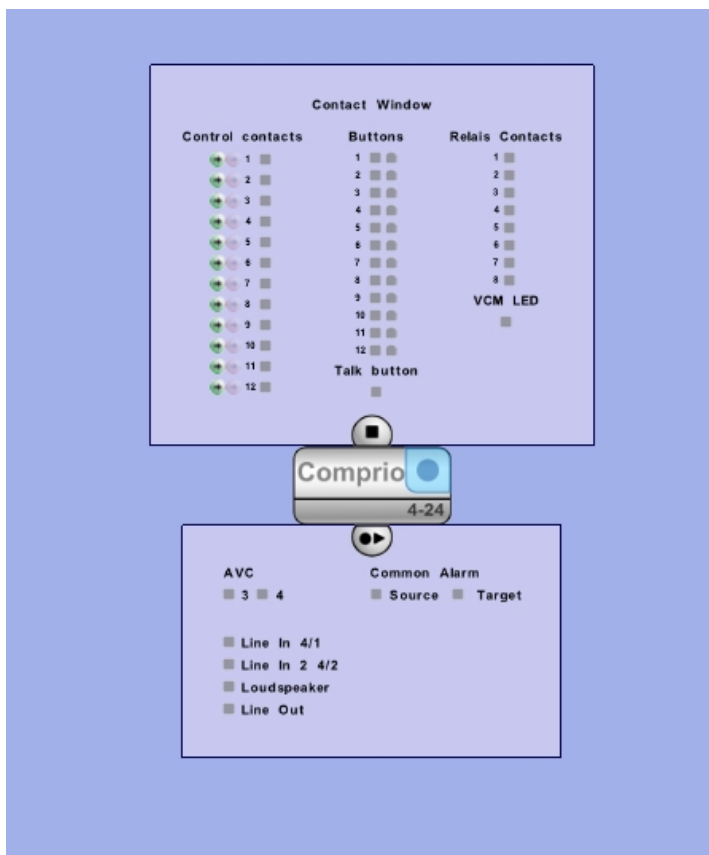
The IP address of the SNMP client can be set in the properties of the object.

The object itself is connected with those control units that are intended to send SNMP client traps to this object.

The following screenshot shows an example of the VARIODYN® D1 Comprio program symbol with all configurable functions.

The programming of the individual components is described in the chapters for the DOM, VCM and UIM.

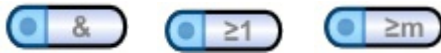
Depiction of the VARIODYN® D1 Comprio (without amplifier)



In contrast to the UIM, the VARIODYN® D1 Comprio has only 12 control contacts. Details on the contact assignment can be found in the installation manual (Part No. 798663.GB0 or 798667.GB0).

5.4.22 Logic elements

Symbol:

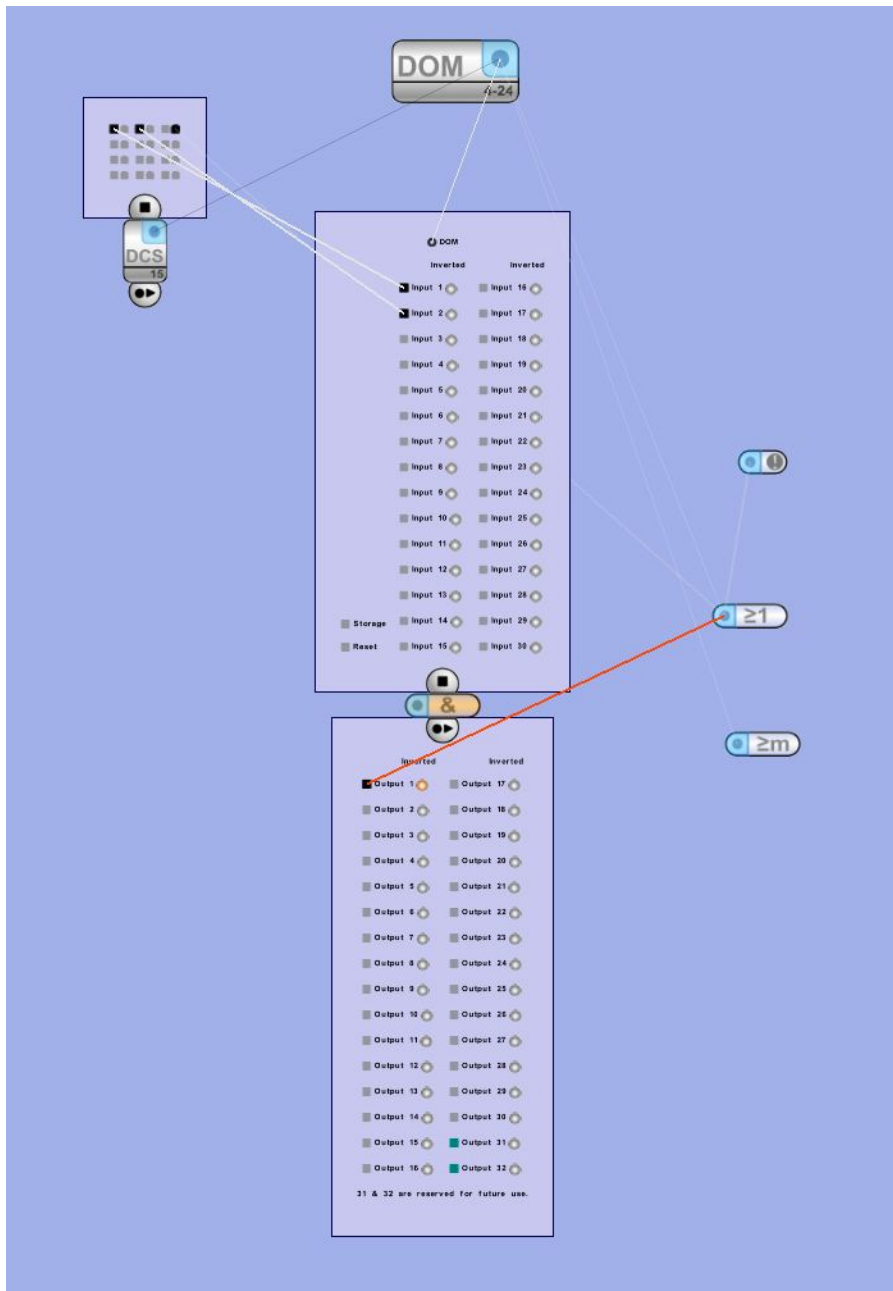


The user has three new objects available with the logic elements:

one AND-gate, one OR-gate and one counter element (ADD). A combination logic can be created using the elements.

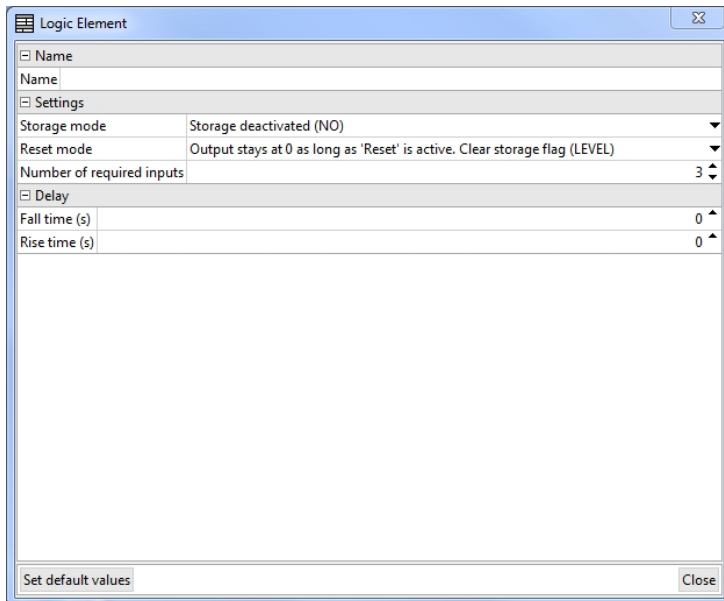
Each of the elements has an input connector to which up to 30 inputs can be attached. Each logic unit has 32 outputs that can trigger an action, such as start a call or activate an LED. Each input or output function can be reversed using the "Inverted" button.

Outputs 31 and 32 are reserved for future functions and should therefore not be used.



The "Storage" and "Reset" inputs can be used to create dependencies. There are different modes in the object properties for this purpose.

The counter element also has an attribute that can be used to specify how many of the created inputs must be activated in order to activate the output.



Logic Element	
Name	
Name	
Settings	
Storage mode	Storage deactivated (NO)
Reset mode	Output stays at 0 as long as 'Reset' is active. Clear storage flag (LEVEL)
Number of required inputs	3
Delay	
Fall time (s)	0
Rise time (s)	0
Set default values	
Close	



Each logic element must also be connected to the control unit in order to ensure an assignment.

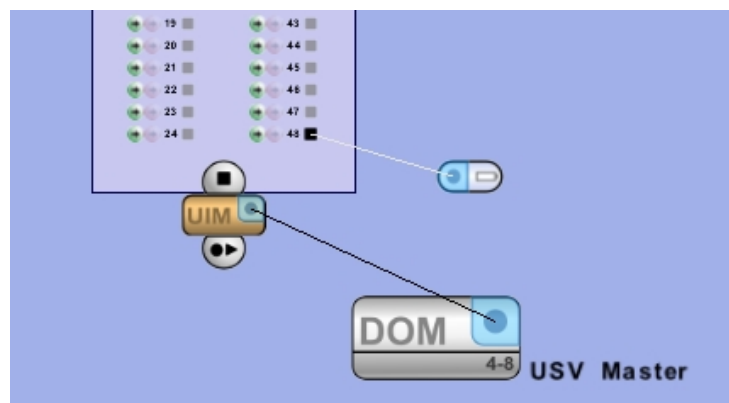
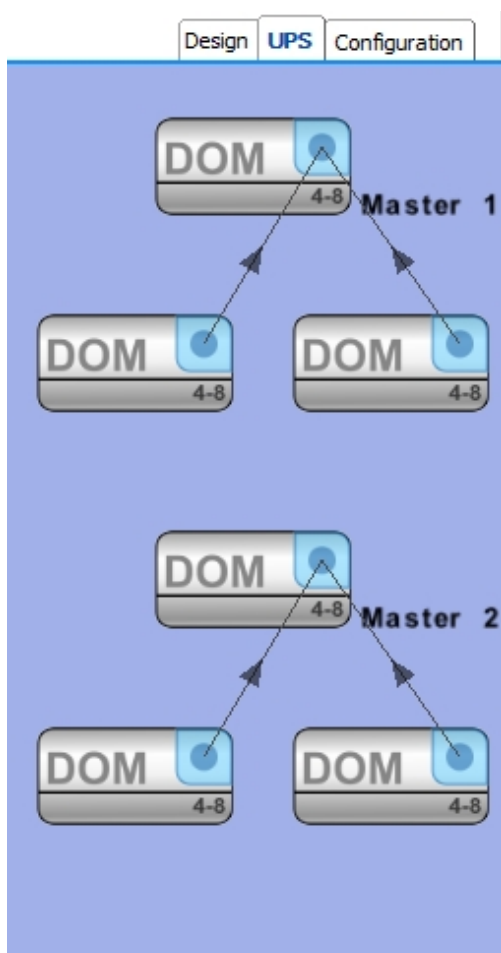
5.4.23 Energy-Saving Mode

The integration of an uninterruptible power supply (UPS) makes it possible for a VARIODYN® D1 system to continue operating without a mains supply (based on the capacity of the batteries, which must correspond to the requirements for alarm systems).

To ensure a long backup period in event of a back-up power failure, the VARIODYN® D1 system can be put into energy-saving mode by the connected UPS (the status is sent from one control unit to all other networked control units). In this mode, all amplifiers are switched off but ready for operation again within approximately 5 seconds. As a result, the system only requires a portion of the typically used power when in a resting state.

In the UPS mode it is possible to set one or more master control units to which one or more UPSs are connected via a contact. It must be noted here that one control unit can only ever have a single UPS master, although there can be multiple UPS masters within the entire system (e.g. individual installation sub-sites).

The connections must always be created from the lower-order control unit to the UPS master. The image on the left shows an arrangement with 2 installation sites, each of which has a UPS master. Then the “energy-saving control” command must be connected to one of the contacts of the UIM or CIM connected to the UPS master (see chapter Energy-Saving Control).

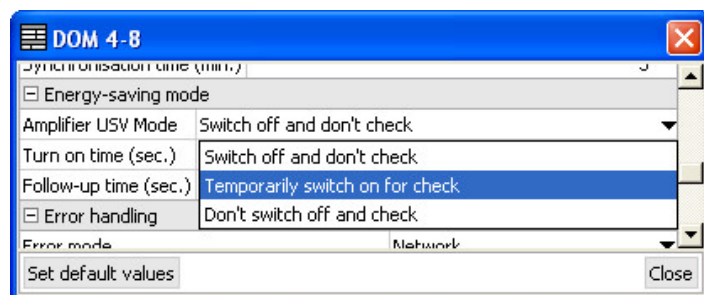


If the UPS master is put into energy-saving mode (by a UPS via activation of a contact), all associated control units also enter into energy-saving mode. The call behaviour of the system changes as follows in energy-saving mode:

Priority < 40	New calls are carried out, active calls remain intact.
Priority > 40	New calls are immediately switched to the "interrupted" state and are only reactivated when normal operation is restored, assuming the calls are still current. Active calls are interrupted and only reactivated when normal operation is restored, assuming the calls are still current.

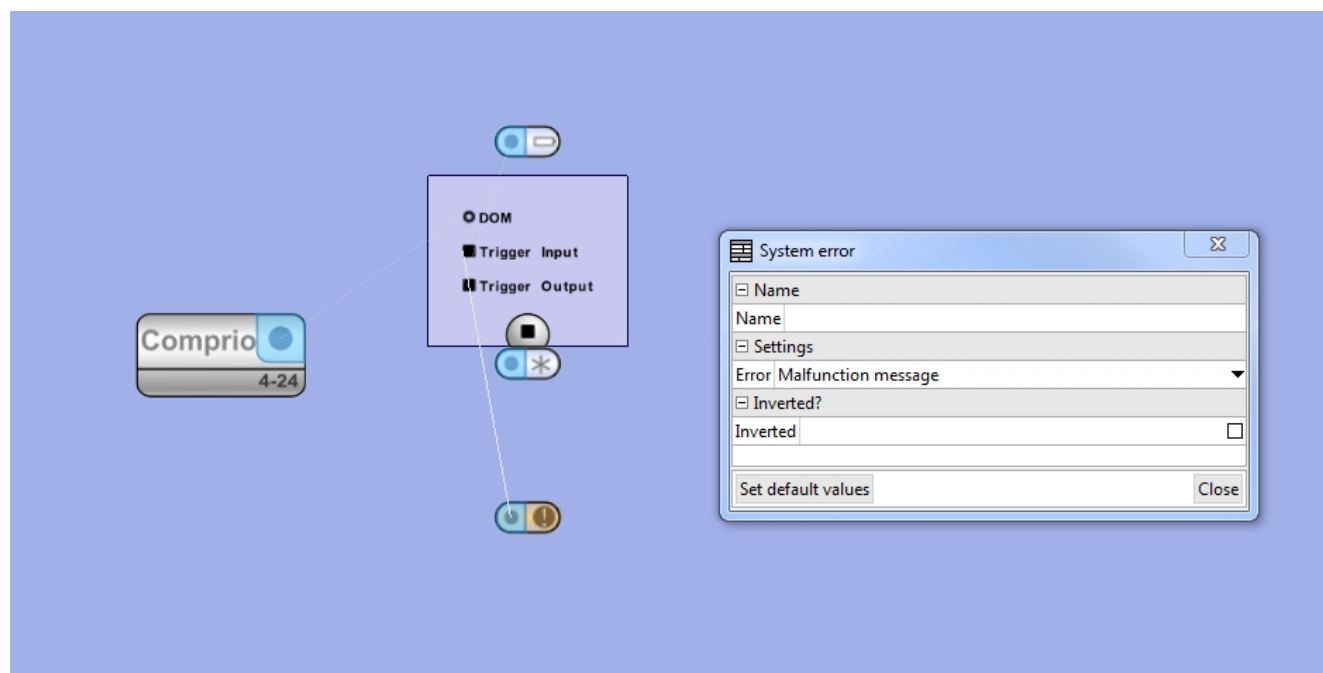
It is possible to select for each control unit whether in energy-saving mode its amplifiers shut off completely always remain switched on or are only switched on briefly for the monitoring.

This is possible in the properties window of every control unit and must be configured in accordance with local regulations.



As the VARIODYN® D1 Comprio does not have a 230 V AC power supply, the 24 V DC power supply is provided via amplifiers 4XD125B and 4XD250B.

These amplifiers indicate that no 230 V AC power supply is connected, if necessary. Energy-saving mode can be activated as follows:

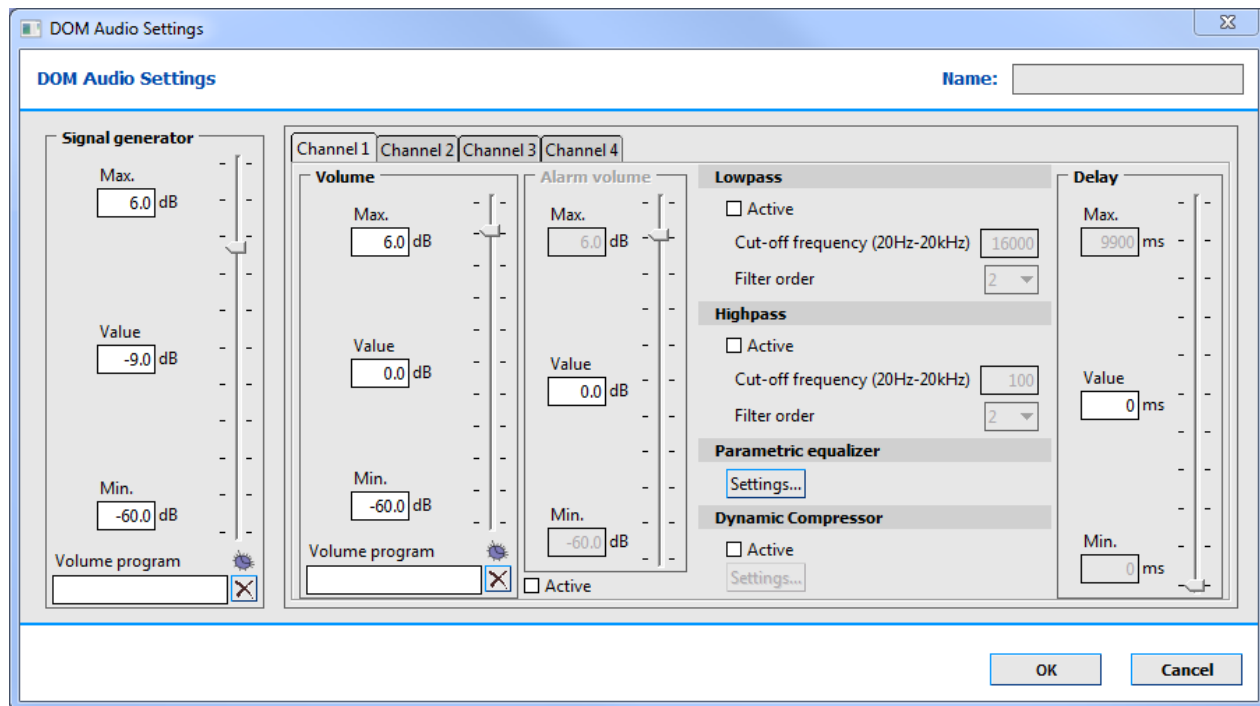


5.5 Audio Settings

5.5.1 Control unit

Symbol:  or 

Specific audio parameters can be individually adjusted for each of the 4 amplifier channels via the “Audio Settings” dialog.

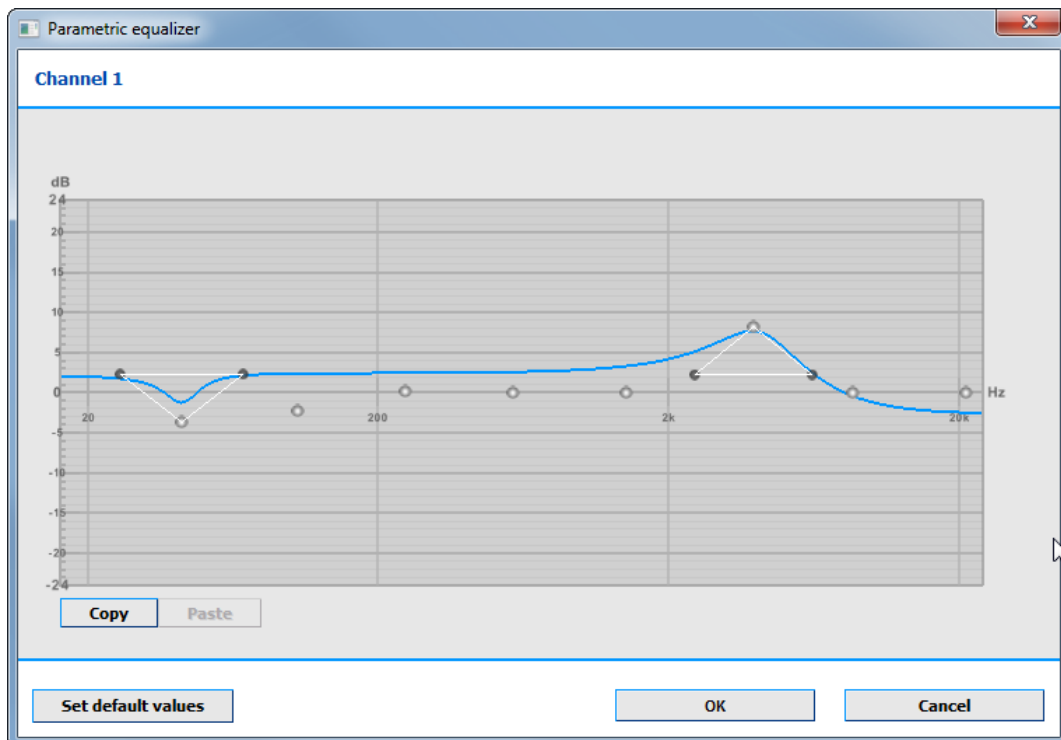


The volume of the internal signal generator for all audio files of the control unit can be changed on the left side. In the middle, the tab for the amplifier channel to be adjusted can be selected and the volume adjusted, a high or low pass filter applied or a delay set. If the alarm volume is also activated and configured, this volume is always applied during calls with alarm priority (bypassing of manual rule). In the settings for the parametric equalizer, up to 8 frequency bands with configurable bandwidth can be raised or lowered for each channel.

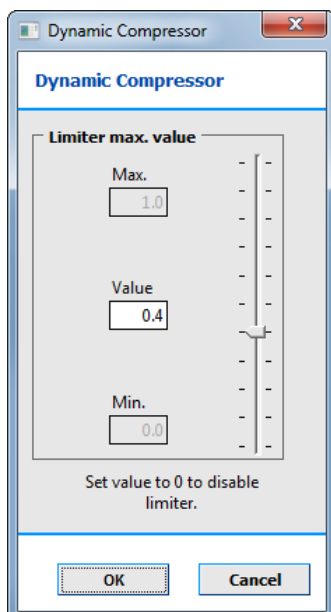
The Copy/Paste buttons can be used to transfer the settings for one channel of a DOM to another channel.



This adjustment should only be performed by qualified acoustics experts.

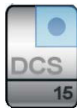


Settings for the limiter can be made under "Dynamic Compressor".

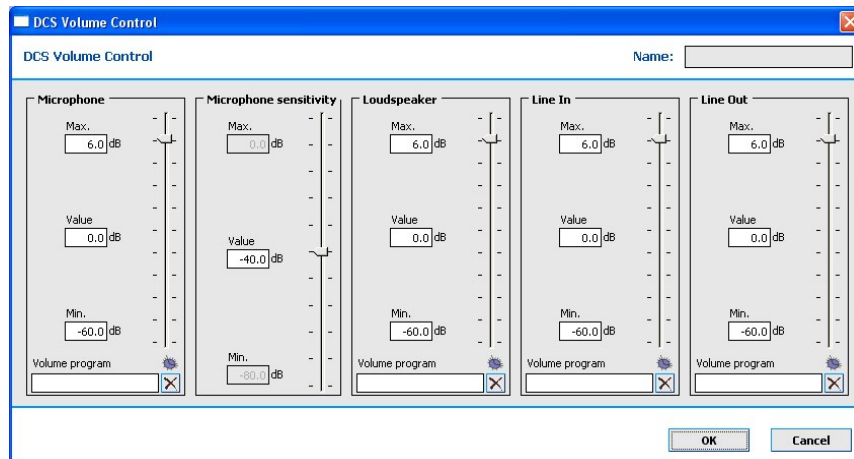


5.5.2 Call Station (DCS)

Symbol:



The volume of the microphone, the speaker and all line inputs and outputs of the DCS can be adjusted in the “Volume Control” dialog. The limiter function is configured via the microphone sensitivity. If speakers are installed in the vicinity of the call station, any resulting feedback can be prevented by lowering the sensitivity.



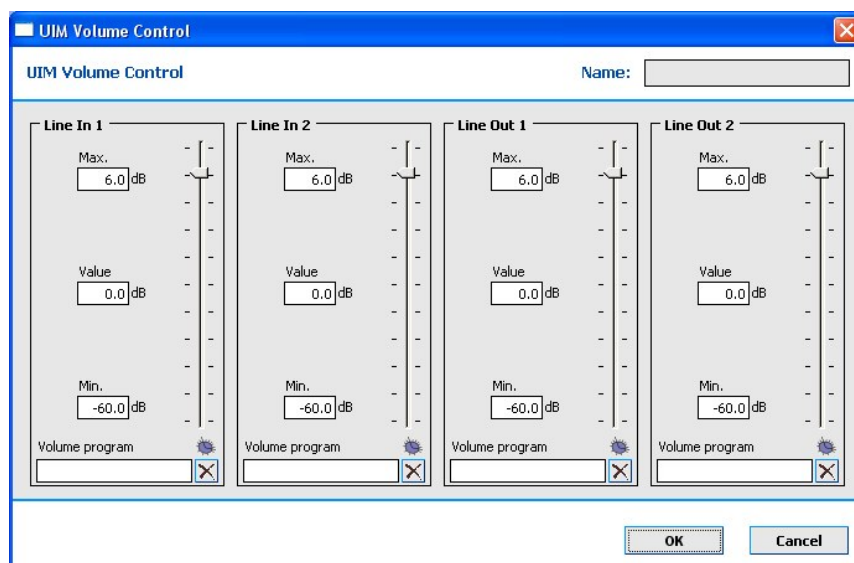
A previously defined volume program (see chapter Time-Based Volume Control) can be assigned to any audio input or output via the “Volume program” dropdown menu.

5.5.3 Universal Interface Module (UIM)

Symbol:



The volume of the 2 line inputs and 2 line outputs on the UIM can be adjusted.



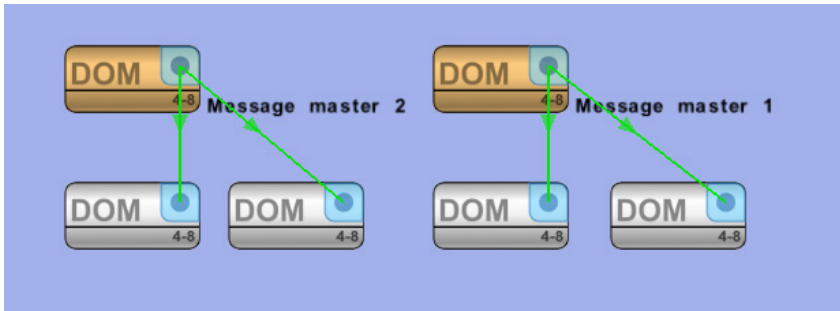
A previously defined volume program (see chapter Time-Based Volume Control) can be assigned to any audio input or output via the “Volume program” dropdown menu.

5.6 Message groups

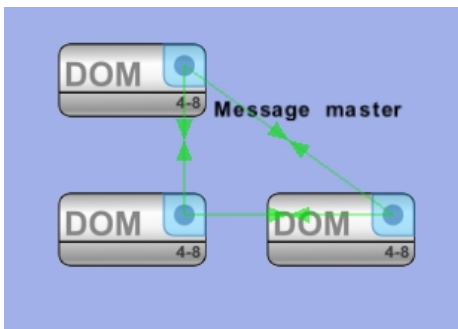
Message groups are a function for displaying (error) messages of individual control units only at specific other control units and not on all Control units in the network.

This can be necessary for applications with sub-panels or distributed control panels in various buildings.

In order to assign control units to another control unit as a group, these must be linked together in configuration mode – identifiable by green connecting lines. In the following example, there are 2 master control units that can each receive (error) messages from 2 other control units.



If one control unit should receive messages from others, the connecting lines must always go from the "Message master" to the reporting DOM (see arrows).



Links can also go from every control unit to every other Control unit in a group – in this case, all control units receive all messages within the group.

It is then necessary to configure in every control unit how to handle (error) messages arriving from control units that are not part of its message group (not linked to this control unit). The default behaviour is that all messages are always accepted. This setting must be changed in every control unit in order for the message group to be active:

Accept messages from unsubscribed control units

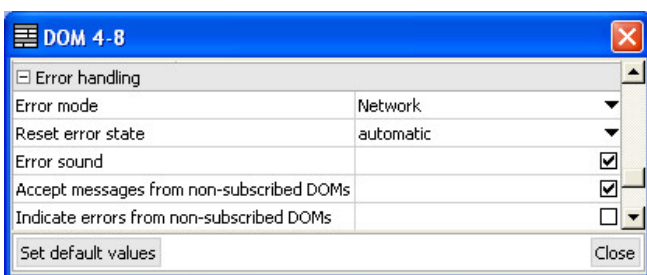
Set: All messages are entered into the message list

Not set: Only messages from control units within the message group are entered into the message list

Show error messages from unsubscribed control units

Set: All errors are displayed (LEDs, error sound) and output (programmed contacts)

Not set: Only errors from control units within the message group are displayed and output

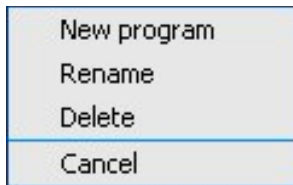


In the example on the left, messages would be entered into the message list (e.g. to allow viewing on every control unit), but an error outside the message group is not displayed (e.g. for quickly identifying the part of the hierarchy where the error occurred).

5.7 Time-Based Volume Control

The time-based volume control is used to increase or lower the volume at specific times (e.g. lowered volume at night). The function can be activated for every audio input (microphone, line) or audio output (amplifier channels, call station speakers). Up to two different volumes are possible per audio device.

To create a new volume program, select the item "Volume programs" in the View menu.



The corresponding function must then be selected in the dropdown menu. Time programs can also be renamed or deleted here.

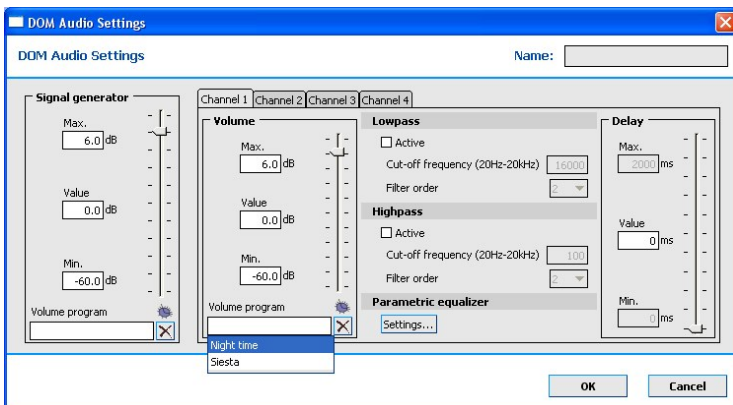
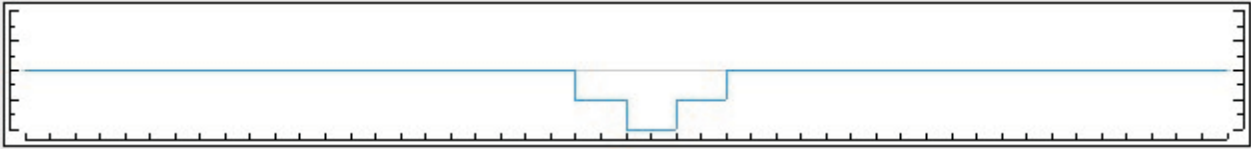


If a time program assigned to an audio input or output is deleted, this association is also deleted.

A volume program allows 2 definable volume changes, which are entered in the >volume 1 and 2< input fields. This volume change is applied relative to the preset volume and can range from -20 to +20 dB.

In the chapters below, it is possible to define the times, days, weeks, months or years when these volume changes should apply.

The default here is 24 hours on every day of the week over the entire year. The effective volume is shown in the graph starting at 0 dB. In other words, if both volumes are configured such that they overlap, the two values are added together. This makes possible a maximum volume change range from -40 to +40 dB.

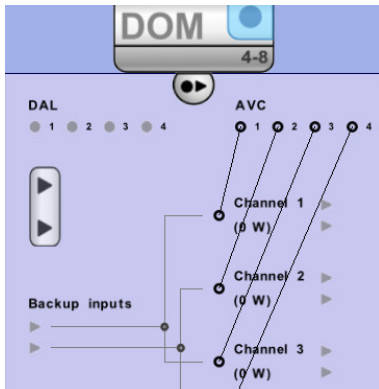


The volume program must be assigned to an audio device in the audio settings of the corresponding module.

For example, an amplifier channel on the control unit.

5.8 Automatic Volume Control

In the VARIODYN® D1 system, it is possible to automatically adjust the level of the amplifier based on ambient sound. This is accomplished with microphones that measure the ambient sound, which is then used to adjust the volume of the VARIODYN® D1 system.



If “AVC” inputs are connected with amplifier channels in the additional connection control, the AVC settings dialog can be opened by right-clicking on the control unit. Multiple amplifier channels can also be controlled by a single AVC input.

All connected speaker lines must always be engaged in an automatically controlled zone. If only some of the speakers are used, correct functioning of the automatic volume control cannot be ensured.

All relevant settings for each AVC input can be configured in the AVC settings dialog. It is only possible to select inputs that are connected to at least one amplifier channel in the additional connection control of the control unit.

The screenshot shows the 'AVC settings' dialog box. The title bar says 'AVC settings'. Inside, there is a tabbed interface with 'AVC input 1' selected. The settings are organized into seven columns: 'Rise time', 'Fall time', 'Reaction level', 'Sensor deviation', 'Level deviation (minimum)', 'Level deviation (maximum)', and 'Factor'. Each column has a vertical slider and a text box for the 'Value'. The current values are: Rise time 1000 ms, Fall time 5000 ms, Reaction level 60.0 dB, Sensor deviation 0.0 dB, Level deviation (minimum) -20.0 dB, Level deviation (maximum) 0.0 dB, and Factor 1.0 dB. At the bottom left, there is a 'Sensors' dropdown set to '1'. At the bottom right, there are 'OK' and 'Cancel' buttons.

Rise / fall time

The rise and fall times specify the period over which signal changes in the rising and falling directions should be integrated in a dB-linear fashion. Undesired level fluctuations due to ambient sound or the speaker signal can be reduced by increasing the rise and fall time.

Reaction level

The reaction level indicates the ambient sound level at which the automatic volume control should engage and increase the volume.

Sensor deviation

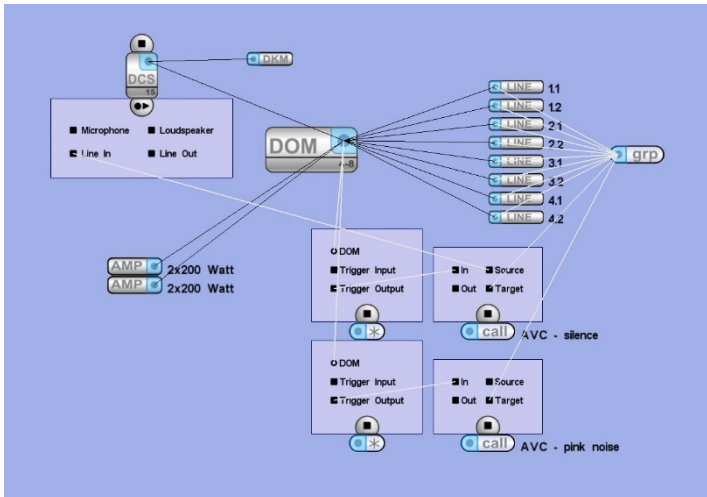
The sensor deviation is used to correct the measured sensor level in order to calibrate the sensor (microphone) at a desired point within the respective zone. If two sensors are operated on an AVC channel, the calibration point must be selected such that both sensors receive roughly the same sound pressure. By default, this value can be set to 0 dB.

Level deviation (min) / (max)

The maximum level deviation refers to the minimum damping of the signal by the AVC (e.g. 0 dB); the minimum level deviation corresponds to the maximum damping (e.g. -20 dB). The difference of these two values defines the control range.

Sensors

The number of sensor microphones used can be set in the “Sensors” input box.



As preparation for the AVC calibration described in the next chapter, the depicted calls must be created in every control unit that utilises AVC.

AVC silence must have a source to which no signal is connected (e.g. line in); AVC pink noise has the pink noise of the control unit as source.

Both calls must have all controlled lines of this control unit as target.

The virtual DOM contacts are used to establish the association with the respective control unit.

5.9 Summary of the AVC function

For the Automatic Volume Control function (AVC) each DOM provides four ports for a sensor input. Each sensor input can be connected to up to two sensors (microphones) which will then pick up the ambient noise in one speaker zone.

There are several ways in which the AVC system can be configured. The AVC function can also be used while there is background music playing. In this case, an advanced algorithm subtracts the background music signal from the ambient noise in the speaker zone.

5.9.1 Function principle

The AVC adjusts the volume of the loudspeaker lines in accordance with the ambient noise level. This ensures a nearly constant ratio between the audio signal (e.g. speech or alarm) and the ambient noise. The challenge lies in adjusting the volume in accordance with the ambient noise, but independent of the audio signal.

The sensor (microphone) connected to the AVC input of a DOM simultaneously measures audio signal and ambient noise, but only the audio signal should be "deducted". To accomplish the "deduction", the AVC relies upon the acoustic ambient transfer function (tf) of the loudspeakers, in connection with the sensor. The tf is determined in the calibration phase. Furthermore, to ensure correct adjustment, it is imperative to establish an accurate correlation between the ambient noise level, maximum and minimum audio levels and the reaction level.

Correct adjustment (Fig. 1)

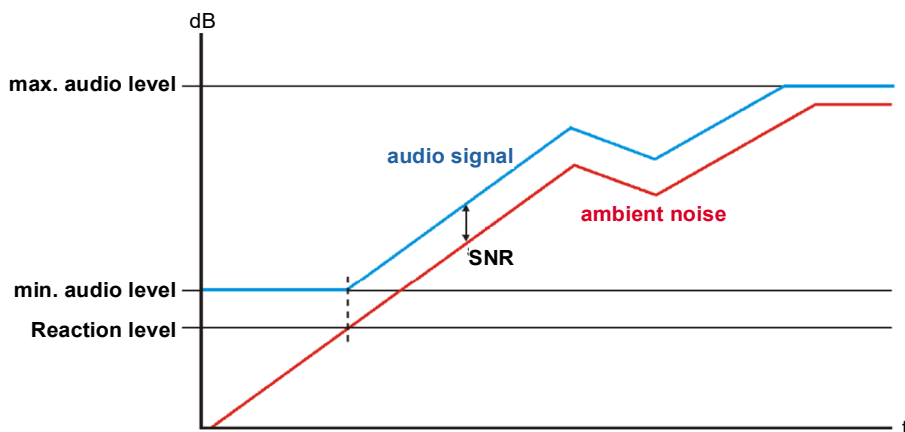
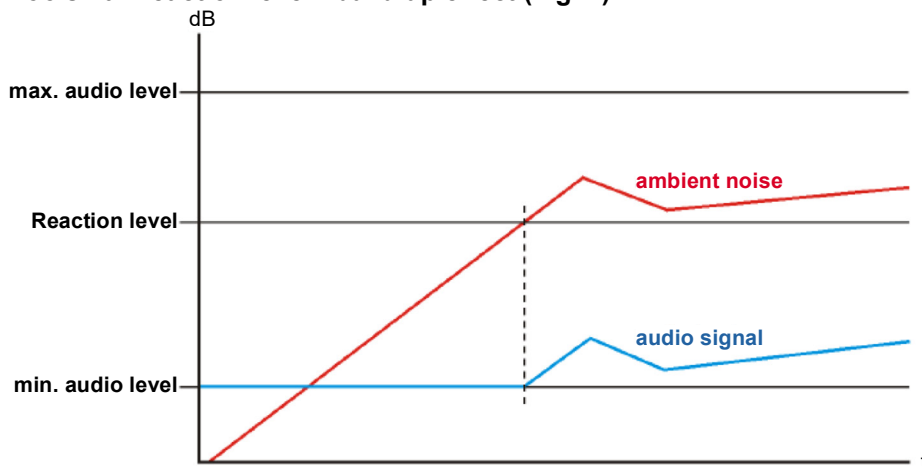


Figure 1 shows a correct adjustment configuration:

- On the Y-axis (dB) the values measured at the sensor are indicated.
- While the X-axis (t) shows a time span of the adjustment.

The maximum audio level is the maximum possible or wanted audio level of the system, measured at the sensor. It is limited by the physical conditions (loudspeaker power, sensor position, room dimensions, etc.) or the set base volume.

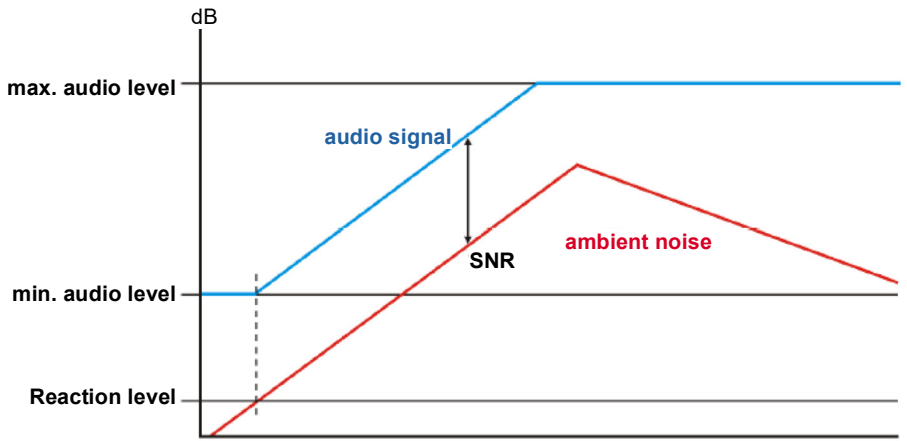
Too small reaction level / build up effect (Fig. 2)



In the VARIODYN D1 system, the distance between audio signal and ambient noise (SNR - Signal to Noise Ratio) is defined by the reaction level. In Figure 1 the reaction level is selected appropriately - therefore the SNR is also in a good range. The acoustic calculation limitations determine that the SNR can reach a maximum of 8 ... 10 dB, beyond which the ambient noise can no longer be recognized and parts of the audio signal are also detected as ambient noise.

As a result of this, the so-called 'build-up effect' occurs, whereby the audio signal will not decrease any lower (see Fig. 2).

Too high reaction level (Fig. 3)



Certainly the reaction level can be selected too high that the audio signal never reaches a value above the ambient noise (refer Fig. 3). This can also happen with a too high ambient noise level - but then the system was not projected with enough power.

Calibration phase

The calibration phase is essential for the functioning of the AVC function.

Within it the transfer function (tf) will be determined. The tf has to be measured from all source signals (loudspeakers) to the sensor(s) of the AVC. To determine the tf measurement signals with the relevant frequencies will be generated.

During the measurement of a tf following conditions have to be conformed:

- It has to be as quiet as possible in the measured room (ambient level at a minimum 30 dB below the value which can be reached at full conduction).
- All loudspeakers and sensors have to be mounted unmovable and at final position. Each change of this alignment needs a new calibration.
- The "acoustic transfer route" between loudspeaker and sensor(s) has to be nearly as in final operation. For a detailed explanation see next chapter "operation".

Operation

Essential for a correct function is that the t_f is not changing significantly compared to the calibration phase. Therefore it has to be paid attention to that the t_f is determined through the transmission of the sound from relevant loudspeakers to the sensor(s) including all reflections within the room.

Each change of the room has more or less impact to the t_f . This can be visualized that the loudspeaker is sending out sound waves in all directions (with a defined directional effect). Then these sound waves are reflected on all walls and objects of the room (with different reflection factors) and reach the sensor with different intensity, delays and directions.

Sound dispersion (Fig. 4)

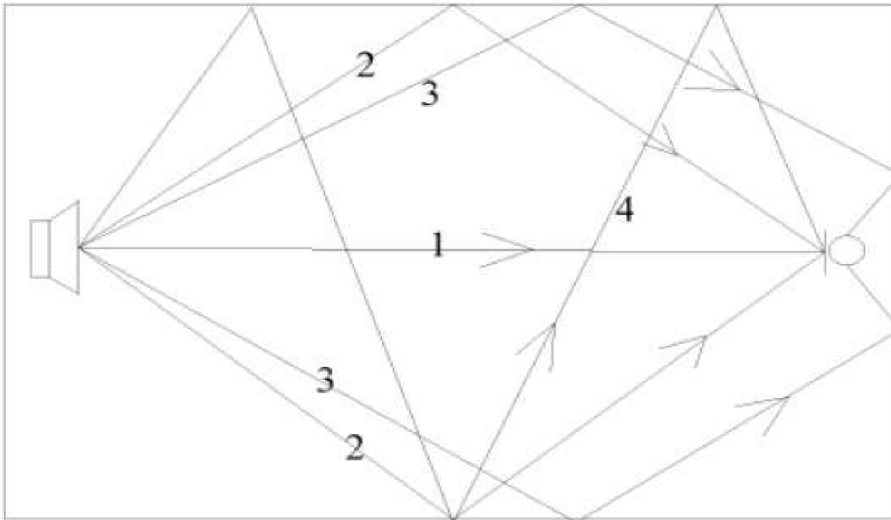


Figure 4 shows the conditions in a simple, rectangular room. Here some dispersion paths are illustrated representatively. Each of these paths makes a part of the t_f . The biggest part has, if existent, always the direct one (1). This part must not be disturbed within operation (by persons, objects). The more reflections occur on the way between loudspeaker and sensor, the less is their part in the t_f (2-4).

Loudspeaker and sensor placement

To the following points attention has to be paid during the placement of the loudspeakers and sensors in order to guarantee a correct function:

- The fixation has to be stiff and immovable.
- The positions may not be changed during operation.
- The loudspeaker and sensor have to be in for "visitors" unreachable places (the reason for this is that no one stands directly in front of the sensor and covers it).
- The direct path (if available) between the loudspeaker and sensor and their closer surrounding (a few meters) is in no case allowed to be changed in operation through persons or objects (for example a sensor is not allowed in the immediate vicinity of an incoming train).
- The distance between loudspeaker and sensor should be as big as possible so that the sensor does not receive a too dominant loudspeaker signal (sensor as near as possible to ambient noise).

Unauthorised acoustic zones

Acoustic zones are not allowed to be built across power amplifier channels. One acoustic zone must have only one power amplifier channel (except all power amplifiers of one zone always get the same audio signal and are never controlled separately).

In an AVC controlled acoustic zone each acoustic source (loudspeaker) has to be active constantly and in the same way as in calibration phase. To ensure the right functionality partly sounding of an automatic controlled zone and partly manual volume adjustments are not allowed. Changes of the acoustic arrangement of loudspeakers and microphones are not possible without a new measuring. Already a few centimeters or a change of the irradiation direction impacts the correct function.

Too strong alteration of the acoustic environment can provoke malfunction, too. Are e.g. in a station sensor microphones and loudspeakers arranged that a train is located between the microphone and the loudspeakers, it is an essential alteration of the acoustic environment. As problematic is a strong acoustic reflection caused by the surface of a train. Acoustic zones must not overlap. If a loudspeaker zone affects the acoustic space of an AVC controlled loudspeaker zone this influence will be interpreted as disturbing signal. Malfunction is caused.

Parameter description**Maximum/Minimum volume level**

The maximum volume level indicates the minimum attenuation of the audio signal by the AVC (e.g. 0 dB), the minimum volume level according the maximum attenuation (e.g. -20 dB). The difference of the 2 values defines the control range.

Sensor deviation

The sensor deviation provides the correction of the measured sensor level to calibrate the sensor (microphone) to a wanted point within the acoustic zone. If this value is not known 0 dB have to be set.

Reaction level

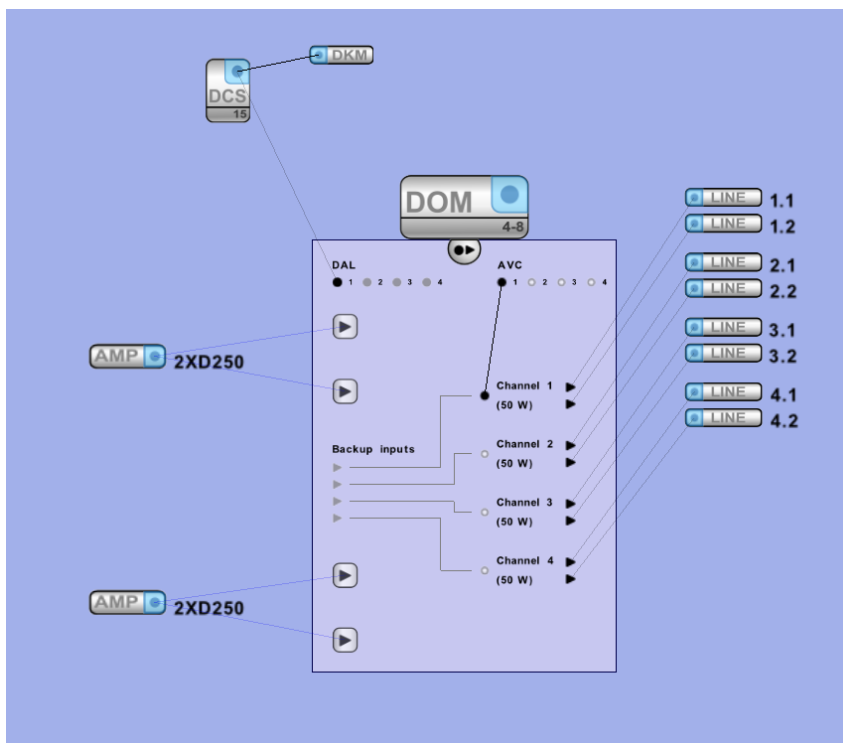
The reaction level specifies at which calculated ambient noise level the automatic volume control engages. Is the ambient noise level rising above this value the AVC starts increasing the volume of the audio signal from the minimum volume level. The maximum volume is limited by the maximum audio level. Through the reaction level also the SNR is defined.

Rise and fall time

The rise and respectively fall time defines over which time span the signal adaptation (in rising and respectively falling direction) should be integrated dB-linear. Unwanted level variation caused by ambient noise or loudspeaker signals could be decreased by rising the rise or fall time.

Scale factor

The scale factor defines the ratio with which the volume is increased in correlation to the ambient noise. Normally a factor of 1 should be chosen. E.g. a factor of 2 means that an increase of the ambient noise results in a doubled increase of the volume.

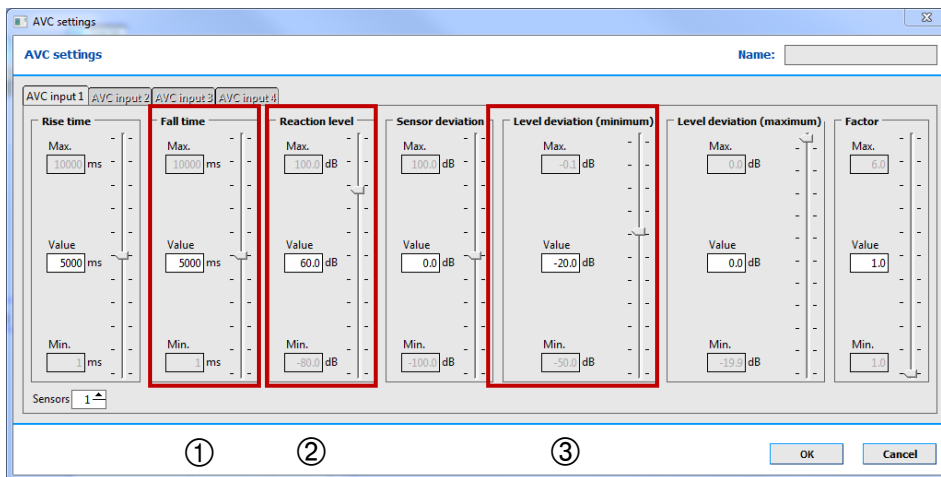
5.9.2 Setup of AVC**1. Preparation in the Designer**

Assignment, which AVC input controls which Amplifier channel – in this case AVC 1 → channel 1.



One AVC input can control more than one amplifier channel.

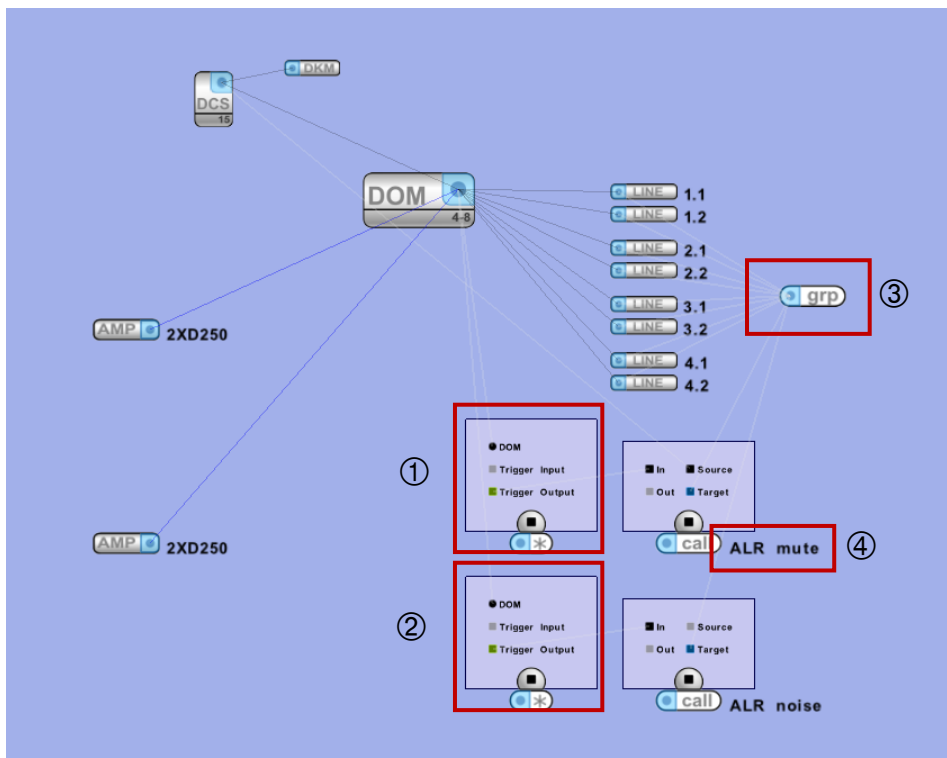
2. In the Designer you have to open the DOM settings - there the AVC settings.



- ① In properties rise and fall time can be set.
- ② The Reaction level is not relevant – sensor deviation is always 0.
- ③ The Minimum level should not be more than 20 dB below the maximum.

3. Preparation in the Designer

Define the following calls in each DOM where AVC is used.



- ① Create a call like this with a source without any audio signal.
- ② Create a call like this with pink or white noise as source.
- ③ Destination is in each case all controlled lines – although assigned to more than one AVC input.
- ④ A unique name is important.

4. AVC Calibration

```

D1Terminal - DOM1
File DOMs Help
help ipconfig settime connect all disconnect all
Opmode Config Erd Liste Imp Liste

Serial DOM1 DOM2 DOM3 DOM4 DOM5 DOM6 DOM7 DOM8 DOM9 DOM10 DOM11 DOM12 DOM13 DOM14

Telnet Output : DOM1 {Lucida console} 9 clear

Logon:root
root[0]@(192.168.1.248#1) [ 1+] >dvavp av 1.1
AV 001.01 Parameter
activation: 0 ①
integration time fall: 500ms
integration time rise: 2000ms
maximum control level: 0.0dB
minimum control level: -15.0dB
sensor deviation: 0.0dB
reaction level: 60.0dB
scale factor: 1.0
freezemode holdtime: 1s
min_diff sensor-setpt: 10.0dB
1 OK

root[0]@(192.168.1.248#1) [ 2+] >atact22glob off ②
2 OK

root[0]@(192.168.1.248#1) [ 3+] >cslst ③
Talk Key Press-elen Source-Chan Presig-Chan loop Keymode Prior Time Recon Par
001( Sprechen 1) LO DD 120 LO AI 041 --- --- --- --- 001 PRESS 250 PERM OFF OFF
002( Sprechen 2) LO DD 120 LO AI 041 --- --- --- --- 001 PRESS 250 PERM OFF OFF
003( Musik) LO DD 120 LO AI 042 --- --- --- --- 001 PRESS 250 PERM OFF OFF
004( ALR Stumm) LO DD 120 LO AI 031 028 --- --- --- --- 001 PRESS 250 PERM OFF OFF
005( ALR Rauschen) LO DD 120 LO AI 031 017 --- --- --- --- 001 PRESS 250 PERM OFF OFF

root[0]@(192.168.1.248#1) [ 4+] >csctrl 4 on ④
4 OK

root[0]@(192.168.1.248#1) [ 5+] >dvavfb av 1.1 learnallpa ⑤
Please wait ...
starting avc-measurement...
5 OK

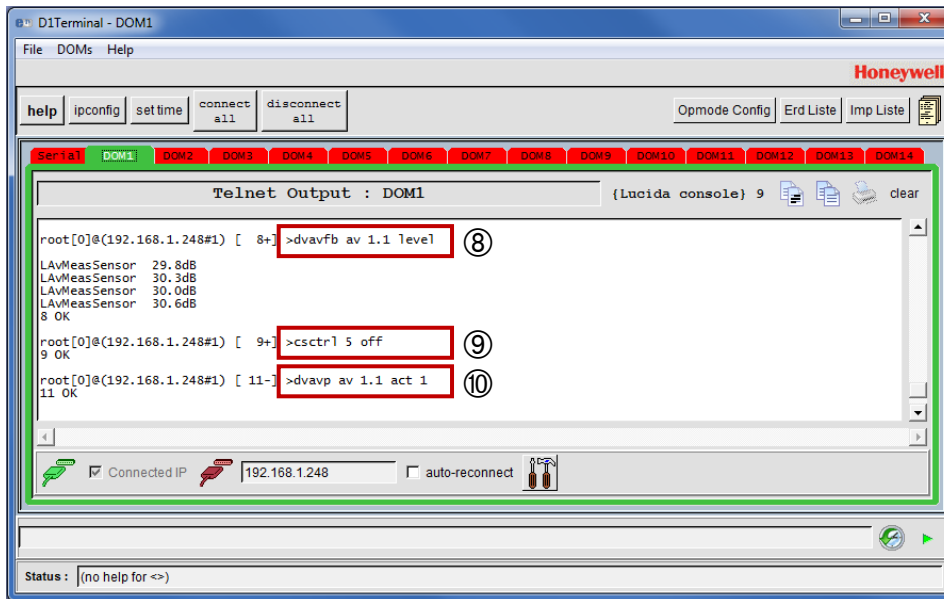
root[0]@(192.168.1.248#1) [ 6+] >csctrl 4 off ⑥
6 OK

root[0]@(192.168.1.248#1) [ 7+] >csctrl 5 on ⑦
7 OK

root[0]@(192.168.1.248#1) [ 8+] >

```

- ① Activation of AVC input must be set to "0 = off".
- ② To avoid disturbance deactivate the amplifier supervision while the calibration process.
- ③ Readout numbers of both calls (silence / noise).
- ④ Start AVC-silence with "csctrl x on".
- ⑤ Calibrate AVC input "dvavfb av x.1 learnallpa".
- ⑥ Stop AVC-silence with "csctrl x off".
- ⑦ Start AVC-noise with "csctrl x on".



- ⑧ Readout AVC values => estimate average from the 4 values.
- ⑨ Stop AVC noise with "csctrl x off".
- ⑩ Activate AVC function.

5. Calculation of the reaction level

Reaction level = avc value – (maximum level – minimum level) – SNR + sensor deviation

SNR = wanted signal to noise ratio

Example: SNR = 5 dB

Reaction level = 63 dB – (0 dB – (-20 dB)) – 5 dB + 0 dB = 63 dB – 20 dB – 5 dB = 38 dB



The calculated reaction level is a guideline. To adjust the control to the particular circumstances, the AVC value should be read out in operation (system must not send out audio). The AVC value represents the ambient noise at public access. Then the exact reaction level can be set.

5.10 User Management

The VARIODYN® D1 system offers complete user management with 3 user groups. Corresponding user authentication is required upon connection to a control unit via the terminal program.

New users can be created and assigned to a user group here.

A password must be specified.

The users “root” and “administrator” are the default users and cannot be deleted.

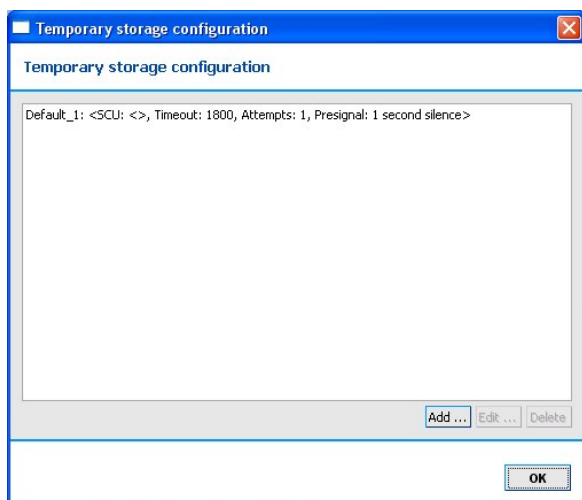
A password can be assigned.

User groups

Root	All commands can be executed.
Poweruser	Can adjust volume settings and execute all list commands.
User	Can only access the message list.

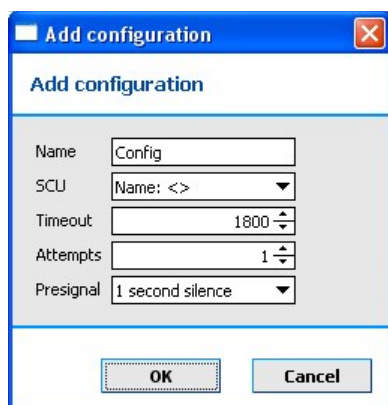
5.11 Automatic Temporary Storage

In combination with an SCU, it is possible to automatically store calls in the system temporarily if all or individual lines are occupied at the time of the call. Once the corresponding lines are free again, the announcement is immediately played.



If an SCU is added to the project window, a default configuration is created and automatically selected for all control units. If different parameters are desired, another configuration can be added and changed by opening the View menu and selecting "Temporary storage configuration".

If the project contains more than one SCU, a default configuration is created for each one and can be selected in the control unit.

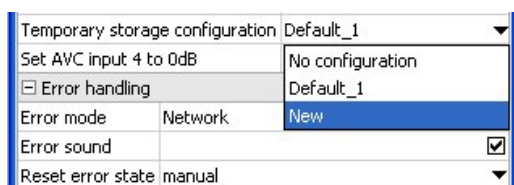


It is possible to define here a time after which the stored call should no longer be played should the lines remain unavailable for an extended period. It is also possible to limit how often the system should attempt to play a recording if this is repeatedly interrupted by calls of higher priority.

In order to audibly separate various temporarily stored recordings, a presignal can be programmed to play at the start of each playback. This presignal can be any signal on the SCU (e.g. gong).



Default configurations cannot be edited or deleted.

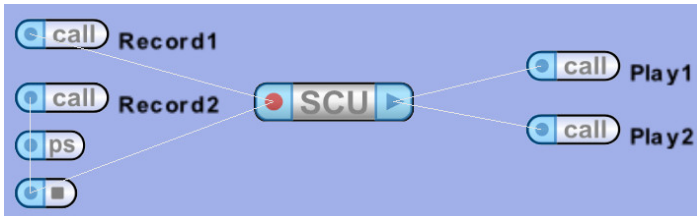


The created configurations can then be selected in the properties.

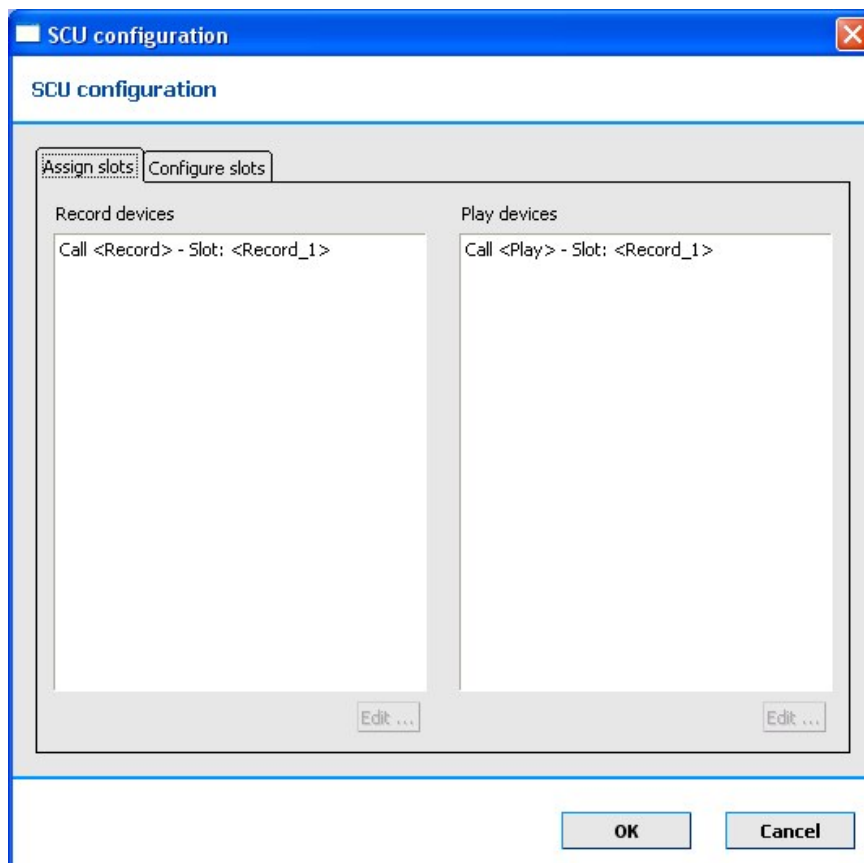
5.12 Recording / Playing Back Standard Texts on the SCU

Recording of standard texts from a signal source (e.g. microphone) and subsequent playback are only possible with an SCU.

Every call or target group can access a memory slot on the SCU as source or target. This is configured by creating a connection with the record symbol or the play symbol on the SCU. For the recording function, a new recording slot is automatically created. For the playback function, the default slot is selected.



Additional slots can then be created, changed or assigned in the SCU configuration function.

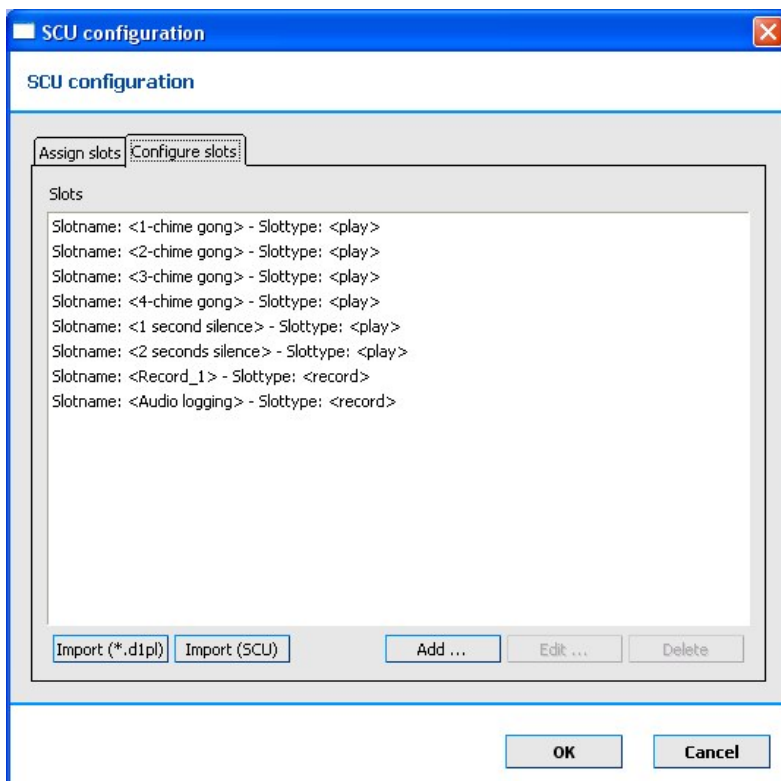


Which slot is assigned to which call can be viewed and changed here.
The assigned names are shown inside <>.

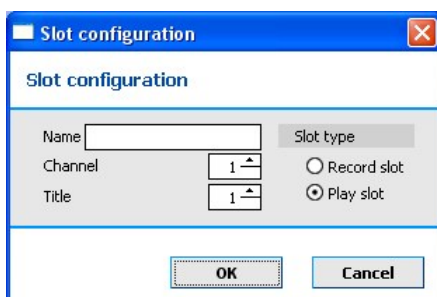


Clicking on the “Edit” button or double-clicking on the connection line of a call opens a window in which the desired slot can be selected. All play and record slots are displayed here.

Slots can be created or existing slots renamed or deleted in the Configuration tab. The slot names and types are displayed (play/record).

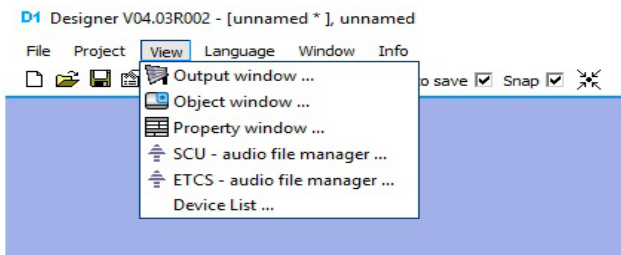


Previously created playlists or audio file slots from the SCU can be imported here (see chapter Uploading SCU Audio Files).



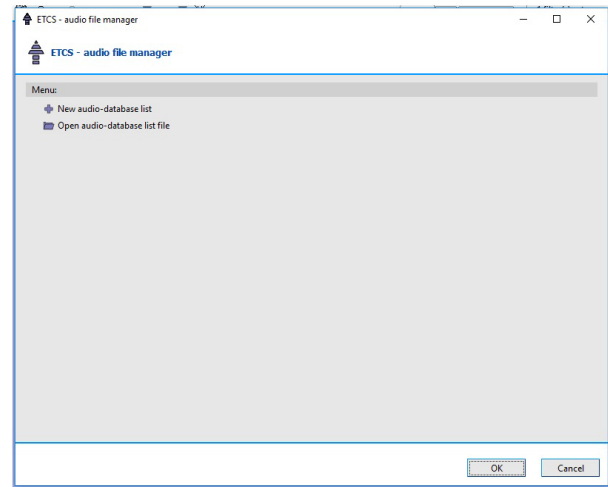
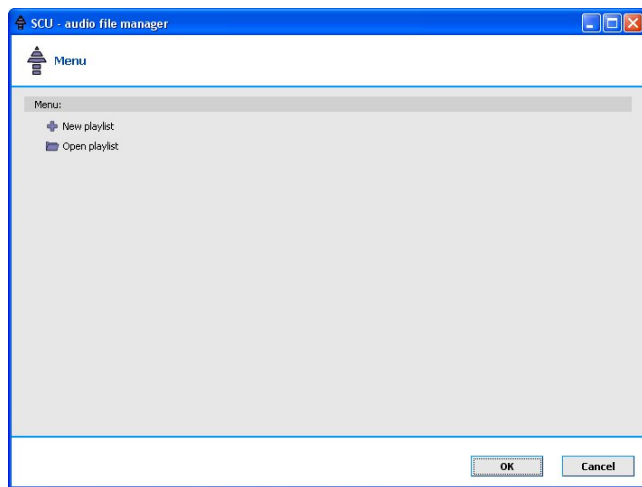
Clicking on the “Add” button opens a window in which the slot can be assigned a name and the memory slot and title can be manually selected. If “Record” is selected as type, only the previously defined default record slots with only the first title are available. (VARIODYN® D1 limitation)

5.13 Uploading SCU / ETCS Audio Files



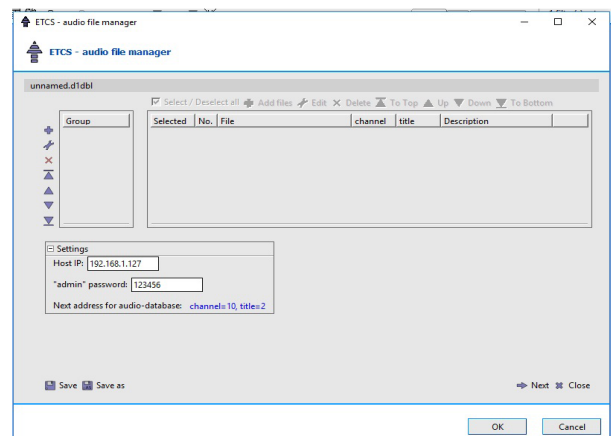
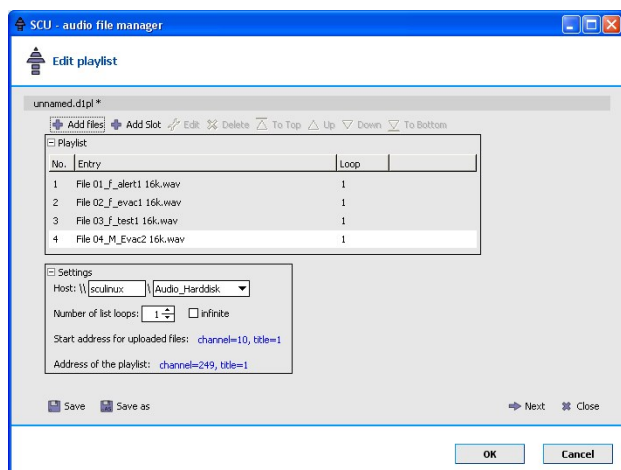
The SCU or ETCS audio file manager can convert audio files as well as create project-independent playlists and load these onto the SCU or ETCS.

After opening the audio file manager from the View menu, it is possible to choose between creating a new playlist or opening an already created playlist.



In the next step, audio files (wav, mp3 or files already converted to adp) can be added to the playlist. The IP address of the SCU or ETCS and the storage location (harddisk or flash memory) can also be selected. Global settings for loops, audio file start addresses and playlist addresses can also be configured. – Please take note of these settings if more than one playlist is stored on the SCU or ETCS.

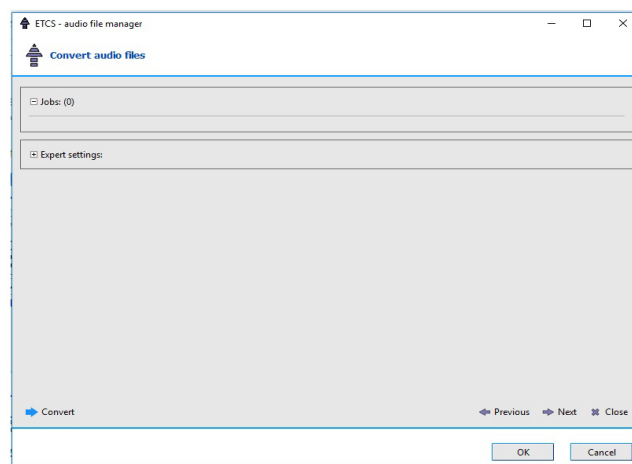
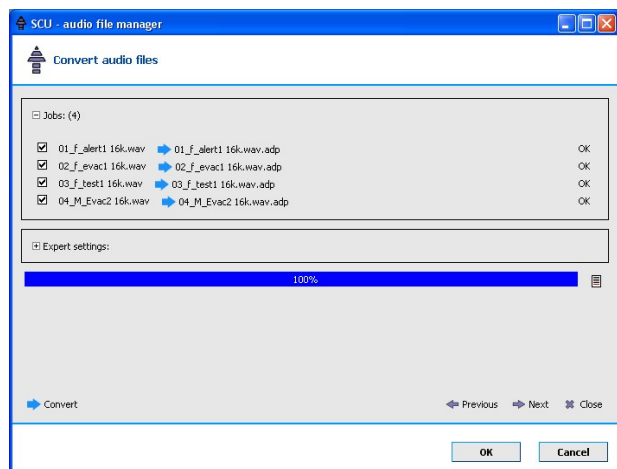
Different addresses must be configured here to prevent any overlapping.



It is imperative that the playlist be saved in order for it to be imported into projects and the standard texts accessed.

In the “Convert audio files” step, all audio files to be converted are first displayed. The conversion is started with the “Convert” button.

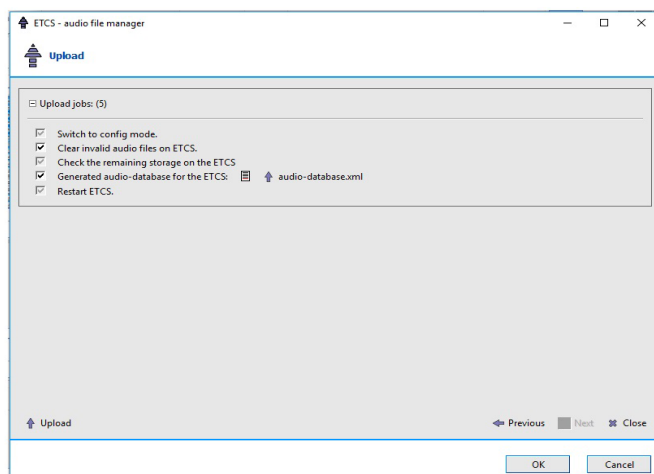
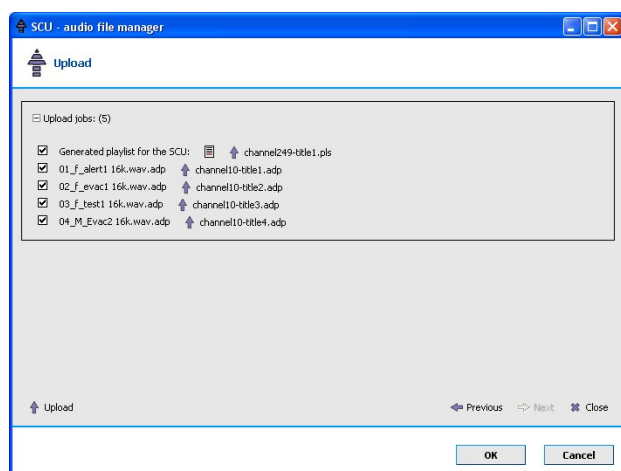
Status messages regarding the conversion of the individual files are displayed on the right. If an error occurs, this can be seen in the log.



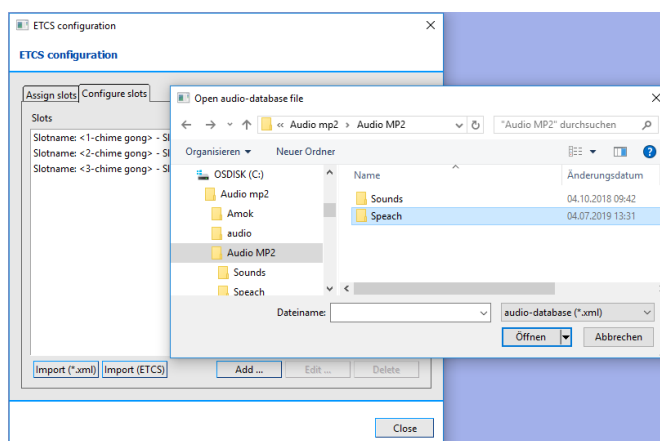
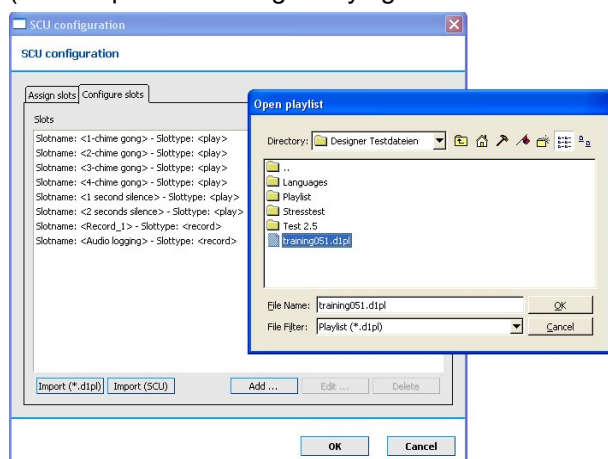
All converted audio files are saved to the source folder of the original files.

After everything has been converted, all audio files and the playlist can be loaded onto the SCU / ETCS in the “Upload” step.

All required files are displayed. If desired, specific files can be deselected. These will then not be available on the SCU / ETCS.

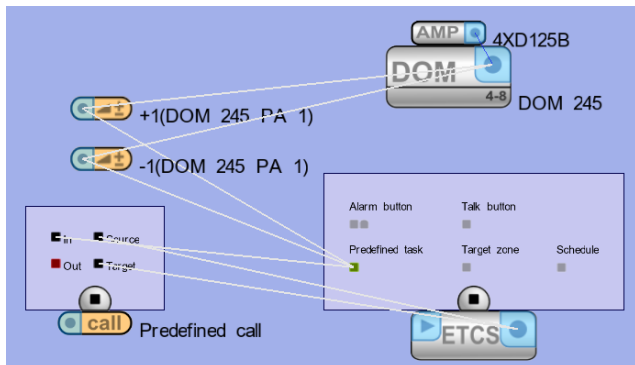


Next, the playlist can be imported into the SCU configuration and the audio files used as standard texts (see chapter Recording / Playing Back Standard Texts on the SCU).



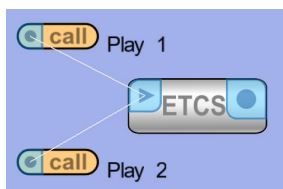
5.13.1 Predefined task

The predefined task is a shortcut operation for ETCS.



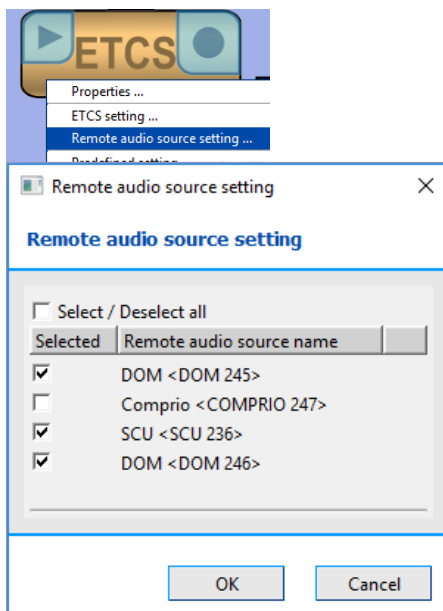
Call and volume settings can be connected to the predefined task of an ETCS. The max. number of predefined tasks for each ETCS is 100.

5.13.2 Standard playback on ETCS



Similar to playback on SCU, every call can access a memory slot on an ETCS as a source and is configured by connecting with the “Play” symbol on the ETCS. Refer chapter “Customize source for play connector”, to customize any audio files as a slot and use the slot as source for the call.

5.13.3 Remote audio source settings

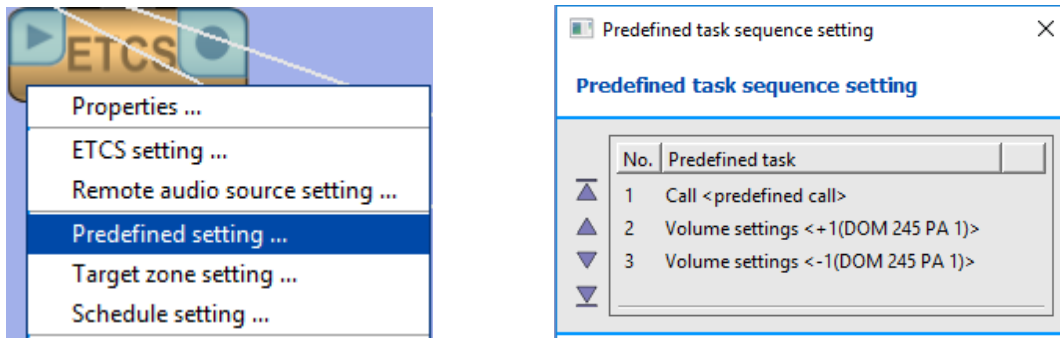


The list of remote audio sources on the “ETCS” source page can be configured in the “Remote audio source settings” window.

In the window, check the items to be displayed.

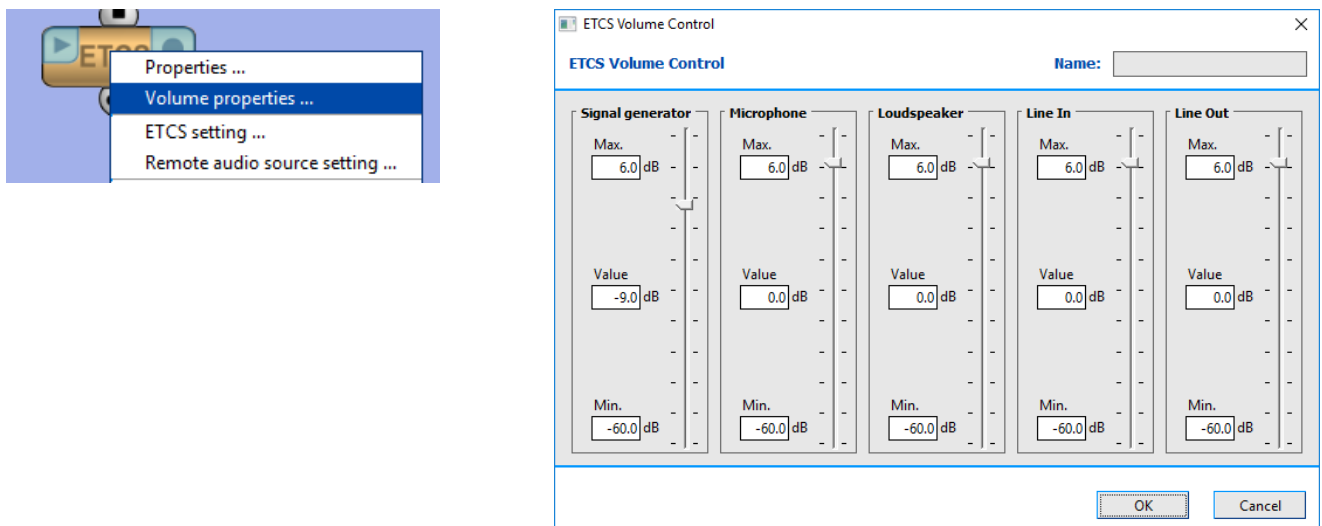
5.13.4 ETCS sequence settings

For ETCS, the order that the tasks are displayed can be changed in the ETCS user interface. Open the menu as shown below and change the desired settings in the window.



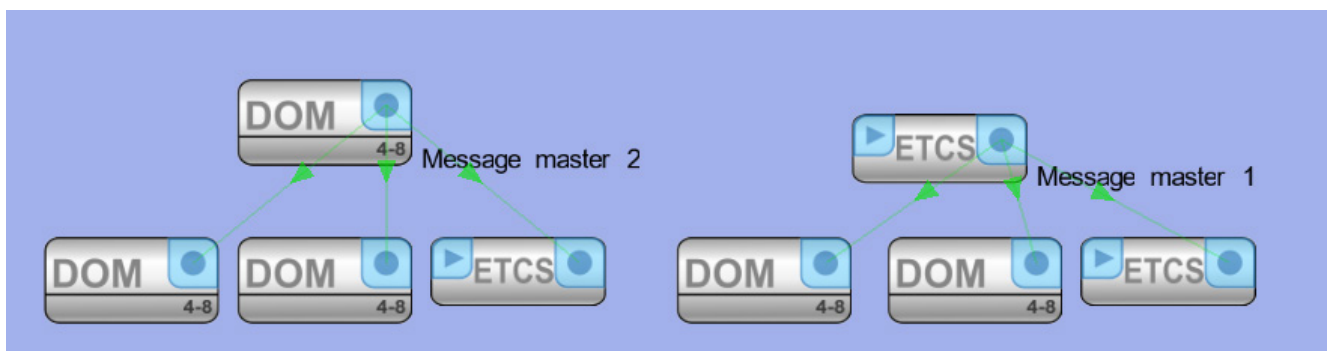
5.13.5 ETCS volume settings

The volume of the audio input and output can be changed for ETCS. Open the menu as shown below and change the volume settings under "ETCS Volume Control".



5.13.6 Message groups

ETCS are also control units in message groups.



5.13.7 User management

ETCS provide complete user management for three user groups. Corresponding user authentication is required upon logging onto an ETCS.

New users can be created and assigned to a user group here. The maximum number of user is 50. Passwords only support Arabic numerals and must be between 0 to 18 characters in length. The password for the “admin” cannot be left blank.

The “Lock time(s)” with following options:

- 1 minute
- 2 minutes
- 5 minutes
- 10 minutes
- 30 minutes
- 60 minutes
- OFF

The users “admin” and “guest” are the default users and cannot be deleted, and passwords can be assigned.

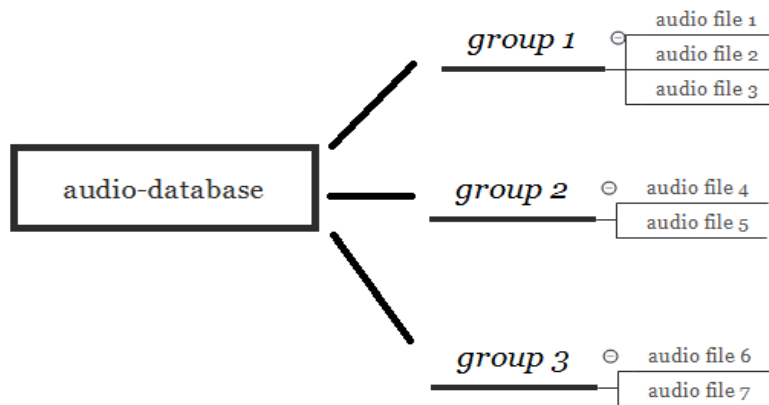
User Group

Root	Have all permissions
Poweruser	<ol style="list-style-type: none"> 1. Can edit and use predefined tasks, schedules, and recordings. 2. Can change the ETCS settings. 3. Can check the ETCS status and log. 4. Can access VA broadcast. 5. Can export log. 6. Can use hardware test feature. 7. Can control volume.
User	<ol style="list-style-type: none"> 1. Can use predefined tasks, schedules, and recordings. 2. Can check the ETCS status. 3. Can access VA broadcast.

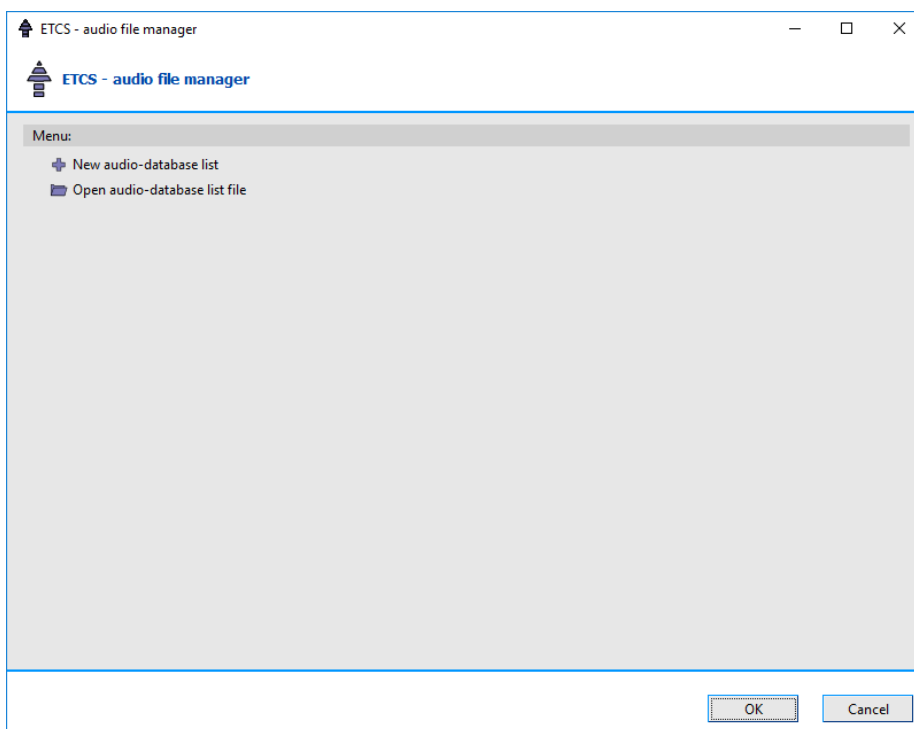
5.13.8 Uploading ETCS audio files

The “ETCS audio file manager” can convert audio files, create project-independent playlists, and load these onto an ETCS.

A two-level structure is used to manage the audio database. All audio files are included into the group for convenience. Each audio database has 98 groups, and each group can hold 250 audio files. The audio database is structured as follows:



After opening the “ETCS audio file manager” from the “View” menu, a new audio-database list can be created or an existing audio-database list can be opened.



To manage the audio-database list:

First, set the Host IP to the IP of the ETCS, and select a starting channel and title for the audio file to be added. Next, add the groups. The group name and order can be managed through the toolbar on the left of the group list. Add, edit, delete, or move the groups up and down.

Then, select the group that needs its source file list edited. The list of source files on the right shows all source files included in the selected group. Edit them by using the toolbar above the list.

Finally, check the box next to the audio source file that needs to be uploaded to the ETCS in the audio source list. Click "Next" to go to the "Convert audio files" page.

ETCS - audio file manager

unnamed.d1db1 *

☒ Select / Deselect all

Selected	No.	File	channel	title	Description
<input checked="" type="checkbox"/>	1	Cestina - ĀāĈĉĎďĚěĚlĭNnŌôRrŤš 10	2	Cestina - ĀāĈĉĎďĚěĚlĭNnŌ	
<input checked="" type="checkbox"/>	2	Chinese - 测试音源.mp3	10	3	Chinese - 测试音源
<input checked="" type="checkbox"/>	3	English - test audio.mp3	10	4	English - test audio
<input checked="" type="checkbox"/>	4	Korean - 오디오 파일 테스트.mp3	10	5	Korean - 오디오 파일 테스트
<input checked="" type="checkbox"/>	5	Polish - AąĆćĘęłłŃńŌóŚśŻż.mp3	10	6	Polish - AąĆćĘęłłŃńŌóŚśŻż
<input checked="" type="checkbox"/>	6	Romanian - ĂăĂăİîȘșȚț.mp3	10	7	Romanian - ĂăĂăİîȘșȚț
<input checked="" type="checkbox"/>	7	Russian - БбГгДдЕеЖжЗзИиЙйЛл 10	10	8	Russian - БбГгДдЕеЖжЗзИи

Settings

Host IP: 192.168.1.127

ETCS configuration password: WELLea246800

Next address for audio-database: channel=10, title=9

Here is the channel title usage in audio database.

channel \ title	1	2	3	4	5	6...27	28	29	30...249	250
1										
2										
3										
3...30										
31										
32										
33										
34...248										
249										
250										

	Invalid
	Invalid. For recording
	Invalid. For gong
	Available. For VA audio and presignal
	Available. For general audio



The IP address of an ETCS can also be configured.

Descriptions must differ to prevent files from overlapping.

Group name cannot be "Record".

"channel 31-title 1", "channel 31-title 2" and "channel 31-title 3" are used for the audio of the gong, so they are not available here.

Also, the title cannot be specified as 1 because it is used for the record function.

On the “Convert audio files” page, click “Convert” to convert the audio file to an *.adp file. After converting, click “Next” to go to the “Upload” page.

ETCS - audio file manager

Convert audio files

Jobs: (12)

- ☒ Cestina - ÁĀĈĉĎďĚěĚĕĭĭŇňŎóŘřŠšŤťÚúŮůÝýŽž.mp3 ➔ Cestina - ÁĀĈĉĎďĚěĚĕĭĭŇňŎóŘřŠšŤťÚúŮůÝýŽž.mp3.wav
- ☒ Cestina - ÁĀĈĉĎďĚěĚĕĭĭŇňŎóŘřŠšŤťÚúŮůÝýŽž.mp3.wav ➔ Cestina - ÁĀĈĉĎďĚěĚĕĭĭŇňŎóŘřŠšŤťÚúŮůÝýŽž.mp3.wav.adp
- ☒ Chinese - 再见理想.mp3 ➔ Chinese - 再见理想.mp3.wav
- ☒ Chinese - 再见理想.mp3.wav ➔ Chinese - 再见理想.mp3.wav.adp
- ☒ Korean - 디자이너 안녕하세요.mp3 ➔ Korean - 디자이너 안녕하세요.mp3.wav
- ☒ Korean - 디자이너 안녕하세요.mp3.wav ➔ Korean - 디자이너 안녕하세요.mp3.wav.adp
- ☒ Polish - ĄąĆćĖęŁłŃńÓóŚśŻż.mp3 ➔ Polish - ĄąĆćĖęŁłŃńÓóŚśŻż.mp3.wav
- ☒ Polish - ĄąĆćĖęŁłŃńÓóŚśŻż.mp3.wav ➔ Polish - ĄąĆćĖęŁłŃńÓóŚśŻż.mp3.wav.adp
- ☒ Romanian - ĂăÂâÎîȘșȚț.mp3 ➔ Romanian - ĂăÂâÎîȘșȚț.mp3.wav
- ☒ Romanian - ĂăÂâÎîȘșȚț.mp3.wav ➔ Romanian - ĂăÂâÎîȘșȚț.mp3.wav.adp
- ☒ Russian - БбГгДдЕеЖжЗзИиЙйЛл+ПпФфЦцЧчШшЩщЪъЫыЬьЭэЮюЯя.mp3 ➔ Russian - БбГгДдЕеЖжЗзИиЙйЛл+ПпФфЦцЧчШшЩщЪъЫыЬьЭэЮюЯя.mp3.wav
- ☒ Russian - БбГгДдЕеЖжЗзИиЙйЛл+ПпФфЦцЧчШшЩщЪъЫыЬьЭэЮюЯя.mp3.wav ➔ Russian - БбГгДдЕеЖжЗзИиЙйЛл+ПпФфЦцЧчШшЩщЪъЫыЬьЭэЮюЯя.mp3.wav.adp

Expert settings:

mp3 -> wav Converter: "C:/Program Files (x86)/D1Designer_V04.03R000/application_data/converters/lame" --decode <infile> <outfile> 2> :

wav -> adp Converter: "C:/Program Files (x86)/D1Designer_V04.03R000/application_data/converters/adpcm_converter" <infile> <outfile> -r

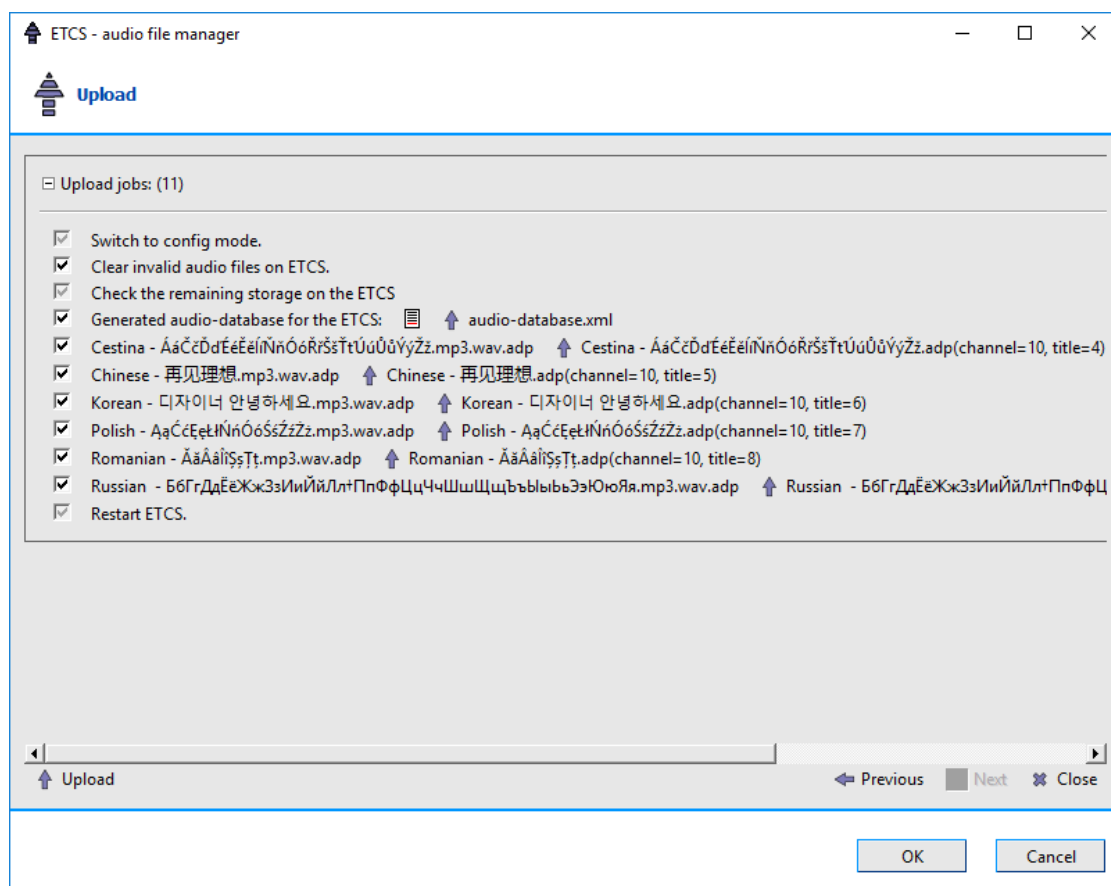
Convert Previous Next Close

OK Cancel



If the audio files fail to convert, please check the path of name and adpcm_convert in “Expert settings”.

In the “Upload page”, click “Upload” to upload the audio files and the audio-database.xml to the ETCS.

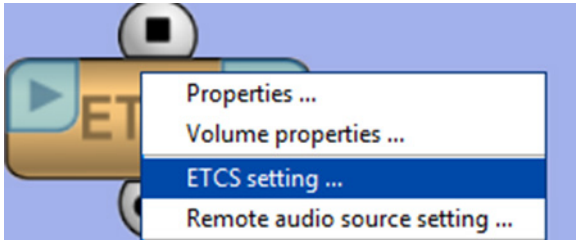


The maximum storage space for audio files on each ETCS is 4 GB. If the remaining storage on the ETCS is not enough, select “Clear invalid audio files on ETCS” to free more space.

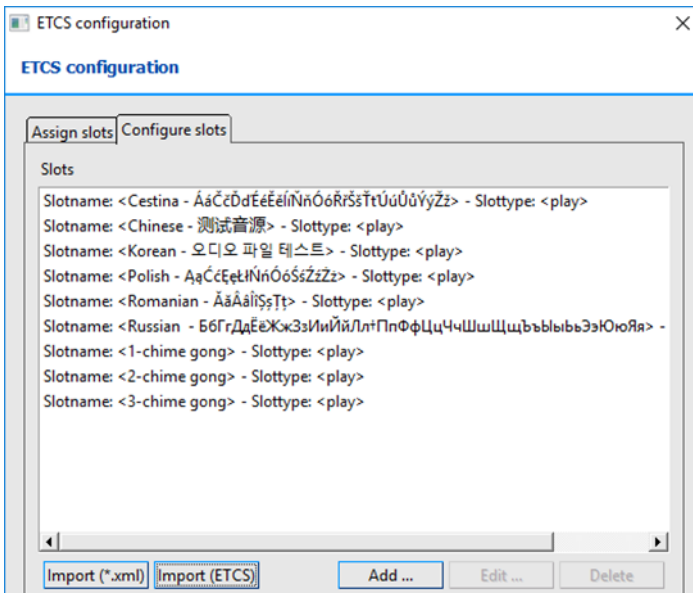
5.13.9 Customize source for play connector

ETCS use audio files via channels and titles, and the audio database manages the channels and titles for each audio file.

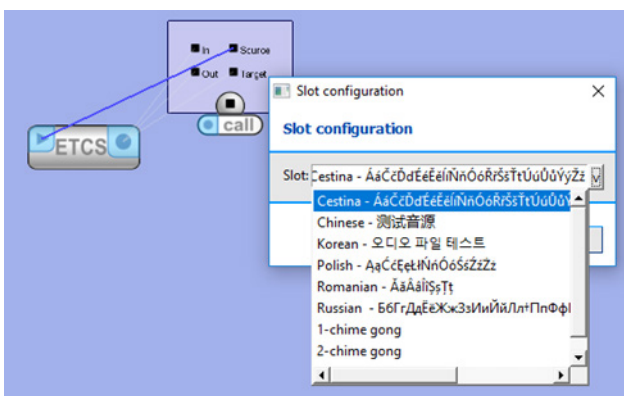
1. To upload audio files to an ETCS, first follow chapter “Uploading ETCS audio files”.
2. Open your D1 project, switch to the “Configuration” tab, and right-click the corresponding ETCS. Select “ETCS Settings” to open the “ETCS Configuration” window.



3. Click the “Configure Slots” tab. Once the ETCS has been restarted, click "Import (ETCS)" to import the audio-database.xml that was just uploaded to the ETCS.



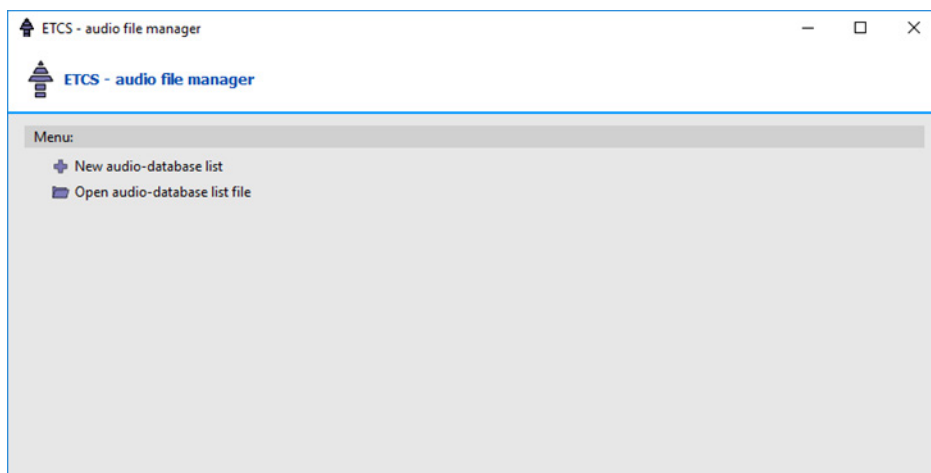
4. The audio files can now be use as a source for the play connector.
5. Add a call and connect the source connector of the call to the ETCS play connector (see chapter “Standard playback on ETCS”).
6. Right-click the above connection line to select a custom source.



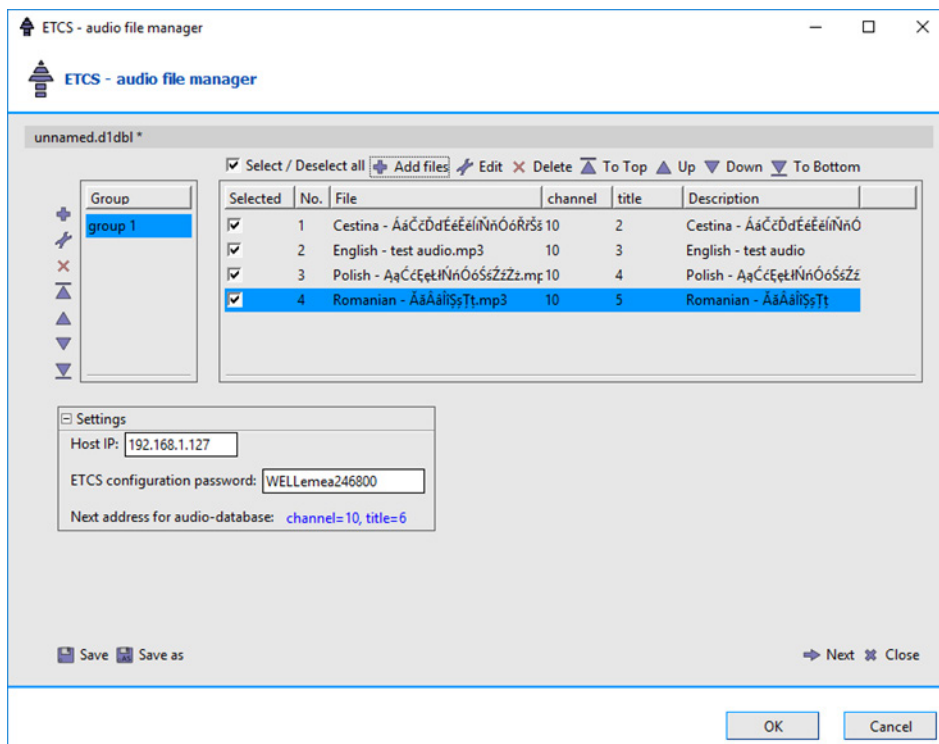
5.13.10 Customize presignal and EVAC / Alert source

The ETCS custom presignal is a special custom source. In the D1 system, the channel title is used to identify the source. If the channel is 31, the title range is 4 ... 28, and those audio files will be loaded onto the call's presignal list. The EVAC / Alert call's source list will also load those audio files, which can then be used for the EVAC / Alert source and presignal.

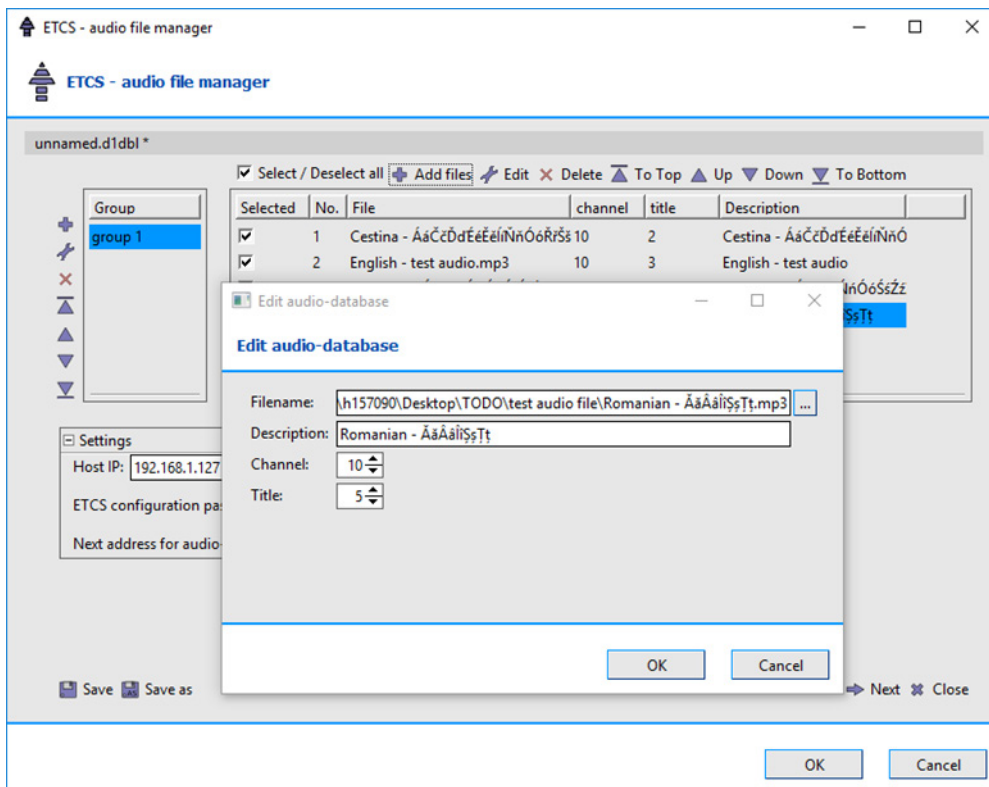
1. Open "ETCS - audio file manager" window from the "View" menu. Click "New" or "Open" for an audio database list.



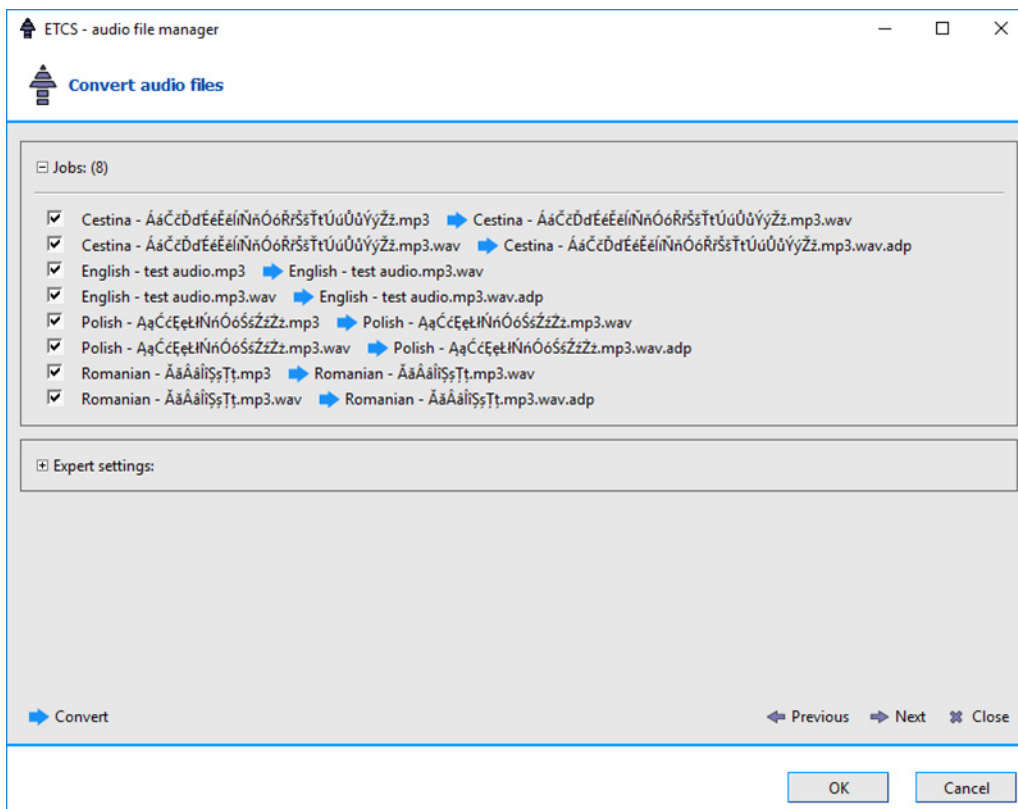
2. Type the ETCS IP in the Host IP editor and type in ETCS configuration password.
3. Add a group or select an existing group, and then add a presignal file into that group by clicking "Add files". Then, it will appear in the list with the same name as the added file.



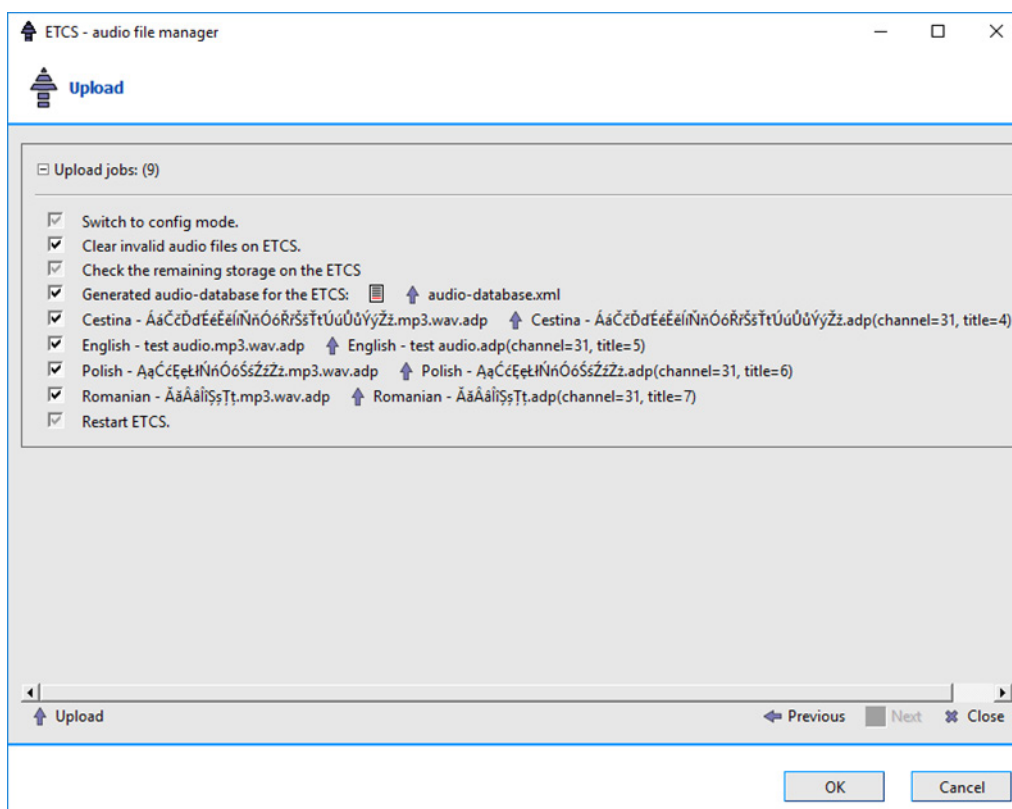
- Select that list and click “Edit” that appears above or double-click the list to open the “Edit” window. Change its channel to “31” and title to “4~28”. Then, click “OK” to save these changes.



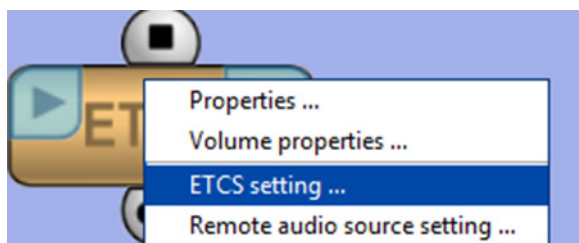
- Click “Next” in the lower right corner to go to the “Convert” page. Click “Convert” to convert the audio file to an *.adp file.



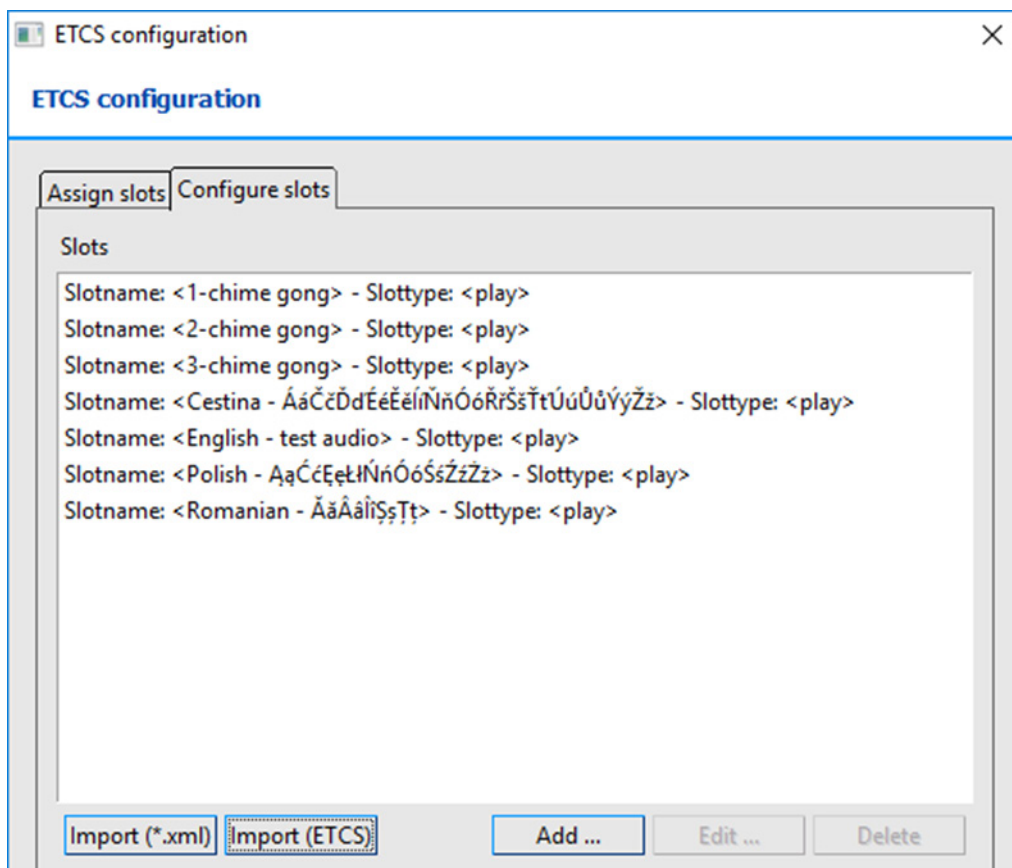
6. Click “Next” to go to the “Upload” page, and click “Upload” to upload the audio files and the audio-database.xml onto the ETCS.



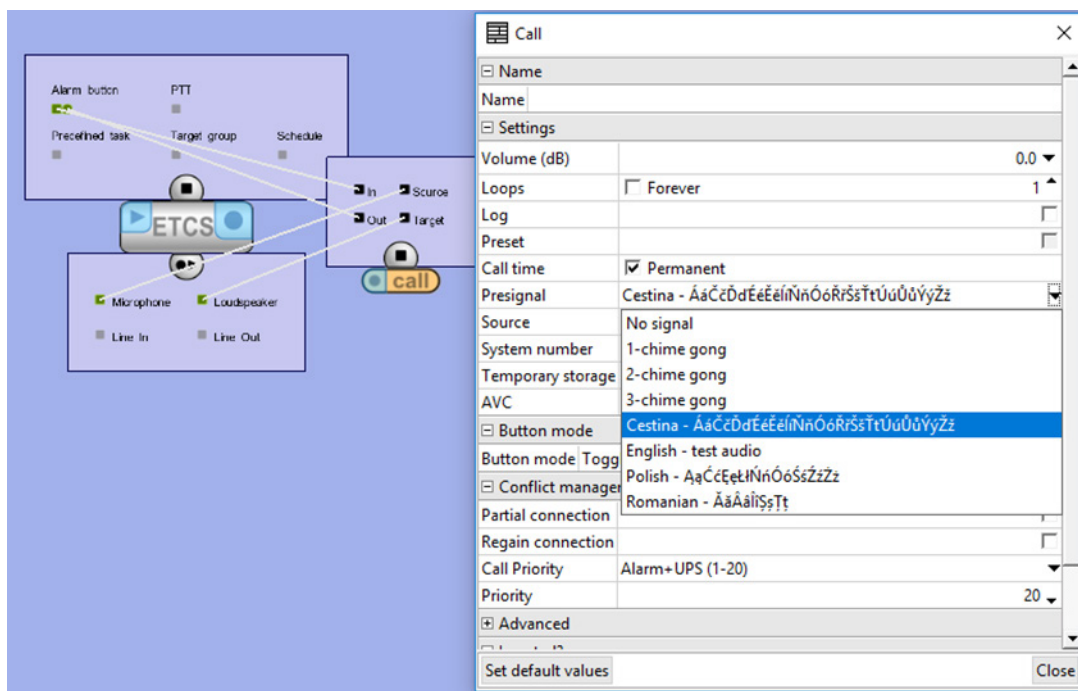
7. Close the window when the files have been uploaded.
8. Open the D1 project, click on the “Configuration” tab, and right-click the corresponding ETCS. Select “ETCS settings” to open to the “ETCS configuration” window.



- Click the "Configure slots" tab. If the ETCS has finished restarting, click the "Import (ETCS)" to import the audio-database.xml that was just uploaded to the ETCS.



- Select a call that has its source connected to this ETCS (microphone, line in, or play connector). Go to the "Properties" window of this call to see that the audio file was successfully added to the presignal list.



11. In the ETCS properties window, customized audio files can be selected for EVAL / Alert source.

ETCS		0.0
EVAC		
Call time	<input checked="" type="checkbox"/> Permanent	
Loops	<input type="checkbox"/> Forever	1
Partial connection		
Presignal	No signal	
Log		
Priority		19
Source	English - test audio	
Volume (dB)	No signal	
Alert		
Call time	1-chime gong	
Loops	2-chime gong	
Partial connection	3-chime gong	
Presignal	Cestina - ÁáĈĉĎďĚěĚlíňNňÓóŘřŠšŤťÚúŮůÝýŽž	
Log	English - test audio	
Priority	Polish - AąĆćĘęIńNńÓóŚśŻż	
Source	Romanian - ĂăÂâÎîȘșȚț	
Volume (dB)		40
Set default values		

5.13.11 VA Live/EVAC/Alert

The VA function can be configured in the ETCS properties window.

ETCS		✕
[-] VA Live		
Partial connection		<input type="checkbox"/>
Presignal	No signal	▼
Log		<input type="checkbox"/>
Priority		20 ▲▼
Volume (dB)		0.0 ▼
[-] EVAC		
Call time	<input checked="" type="checkbox"/> Permanent	
Loops	<input type="checkbox"/> Forever	1 ▲
Partial connection		<input type="checkbox"/>
Presignal	No signal	▼
Log		<input type="checkbox"/>
Priority		19 ▲▼
Source	No signal	▼
Volume (dB)		0.0 ▼
[-] Alert		
Call time	<input checked="" type="checkbox"/> Permanent	
Loops	<input type="checkbox"/> Forever	1 ▲
Partial connection		<input type="checkbox"/>
Presignal	No signal	▼
Log		<input type="checkbox"/>
Priority		40 ▼
Source	No signal	▼
Volume (dB)		0.0 ▼
Set default values		Close

VA Live function is always available on the ETCS.

If the EVAC and Alert sources are set to “No Signal”, the EVAC and Alert functions on the ETCS will not be available.

By default, you can select a gong sound as the source and presignal. If you want to use a custom source and presignal, please follow the subsection “Customize presignal and EVAC / Alert source”.

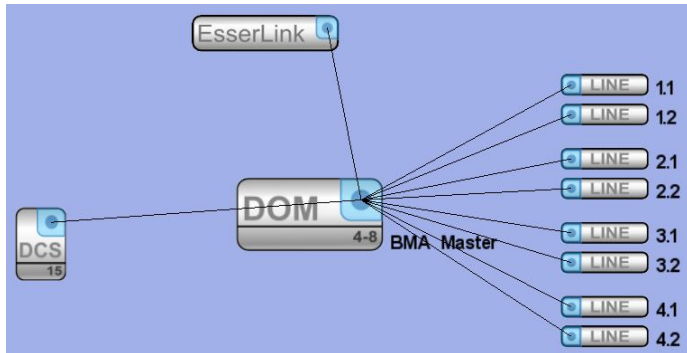
5.14 Serial Connection to a Fire Alarm System (FAS)

A connection over a serial interface is possible for certain fire alarm systems. The VARIODYN® D1 system can be controlled over this connection by the FAS, and faults in the VARIODYN® D1 system are forwarded to the fire alarm system.

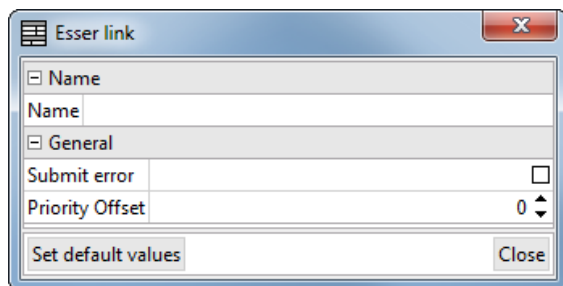
The connection between the two systems is constantly monitored for proper functioning.

5.14.1 EsserLink

The connection to the ESSER fire alarm system is configured here via the serial essernet® interface.



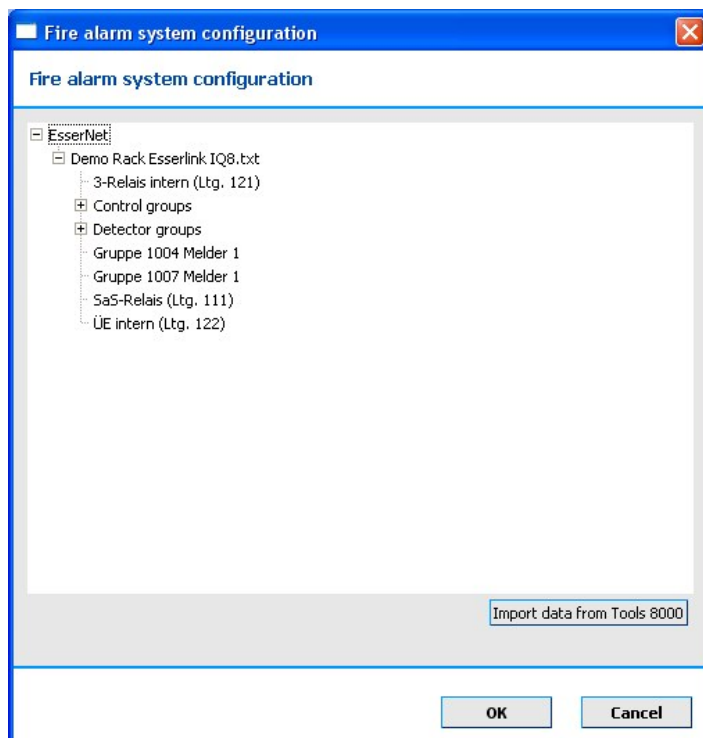
It is first necessary to define which control unit is / will be connected to the FAS via serial interface. This is done using the “EsserLink” symbol in the design mode of D1 Designer.



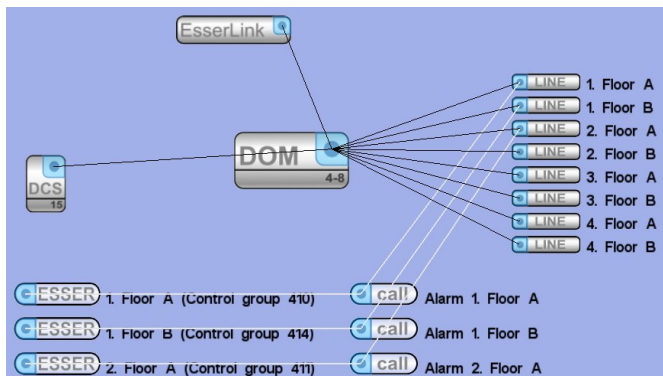
In the properties of the EsserLink, an error in the VARIODYN® D1 system can also be sent to the fire alarm system, if desired. To configure this, the corresponding box must be checked.



Consider the priority offset in the redundant connection of a FAS!



It is then possible to import one or more configuration files (*.txt) of the FAS programming software tools 8000 into the D1 project via the menu item “View > Fire alarm system configuration”.



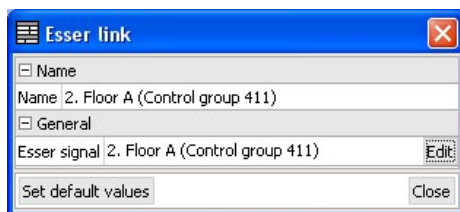
All control groups configured in the FAS that should trigger a call in the D1 system must now be added as Esser symbols in configuration mode.

These are connected to calls as trigger inputs. The inputs can be configured as desired.

(See chapter Call)

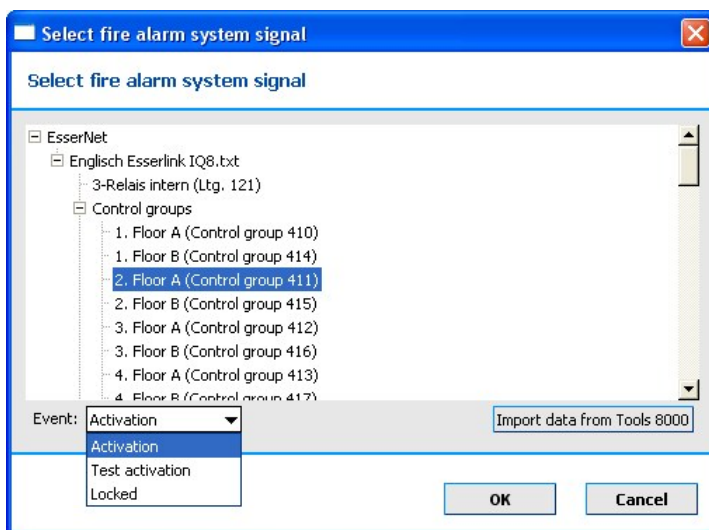
Each of the Esser signals must be connected with the corresponding EsserLink.

This allows redundant connections to an FACP to be programmed easily.



Every Esser symbol must be assigned a specific control group of the FAS.

This takes place in the respective properties window. The control group can be selected by clicking the "Edit" button.

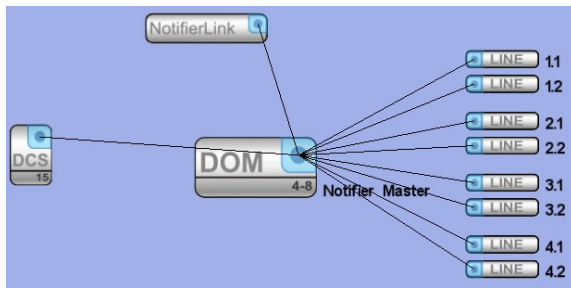


Click on the desired control group here, and, if necessary, select "Test activation" in the dropdown menu if this call should only be started during test activation on the FAS and not when triggered.

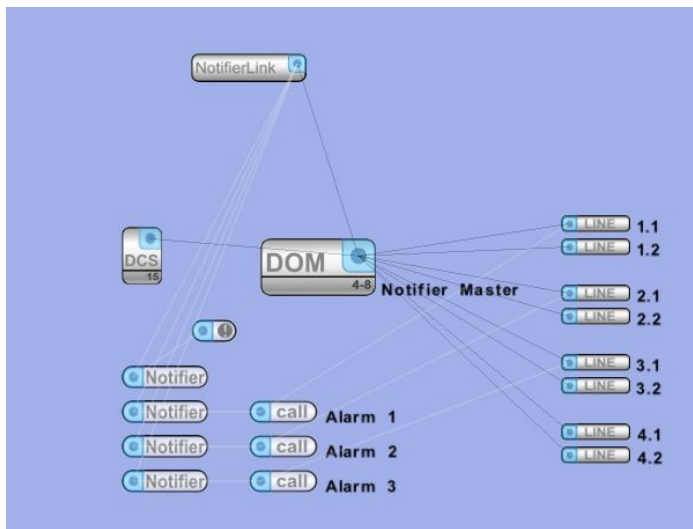
If "Locked" is selected here, the associated call will be triggered when the associated control group is set to locked on the FAS.

5.14.2 NotifierLink

The connection to the Notifier fire alarm system (UK version only) over the serial interface is configured here.



It is first necessary to define which control unit is / will be connected to the FAS via serial interface. This is done using the “NotifierLink” symbol in the design mode of D1 Designer.



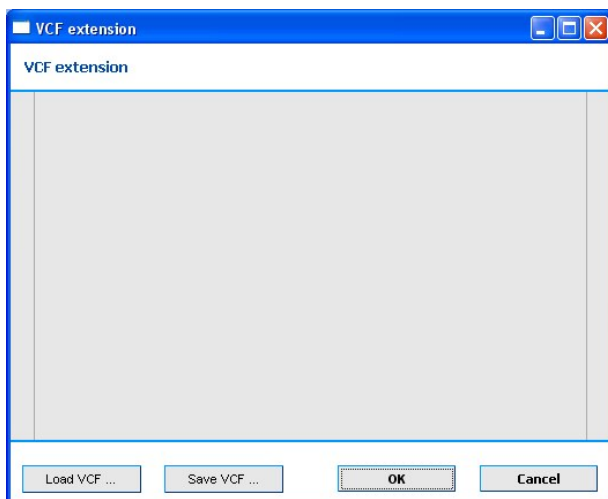
All VIPs (Virtual Input Points) and VOPs (Virtual Output Points) configured in the FAS that should trigger a call in the D1 system must now be added as Notifier symbols in configuration mode. An individual Notifier symbol can be used as both a VIP and a VOP at the same time.

These are connected to calls as triggers, for instance. This can be configured as desired. (See chapter Call)

Each of the Notifier signals must be connected to the corresponding NotifierLink. This simplifies the programming of redundant connections to an FAS.

Every Notifier symbol can be assigned a VIP (input signal) and/or VOP (output signal). In addition, the notifier-specific states of the VIPs and VOPs can be selected.

5.15 VCF Extension

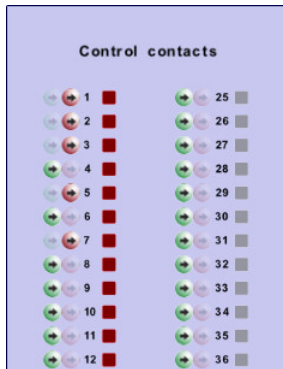


Additional commands or changes can be entered via the menu item VCF extension (right-click context menu of the control unit). These changes are automatically applied upon uploading to the control unit. They can be saved and loaded again onto other control units. This is only necessary in exceptional cases.

5.15.1 View Control Module Configuration for VARIODYN® D1

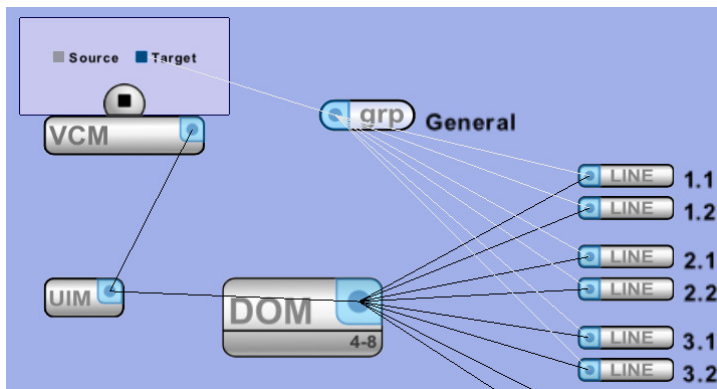
The VCM can also monitor the functioning of the control units via a life sign signal. This requires that a connection be established between the main signal input on the VCM and one of the DOM contacts (connection must be implemented in the components). Every other DOM that should also be monitored by this VCM, must be connected to the "Other" connector (no additional hardware connection required).

The VCM is a module for cabinet installation and makes available additional collective messages and operating elements for the VARIODYN® D1 system. Faults can be reset and a collective alarm triggered or ended.



The VCM is directly connected to a UIM in design mode (see chapter Hardware Configuration)

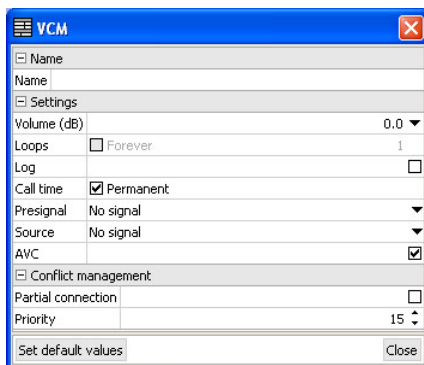
This uses 12 control contacts on the UIM, meaning they are no longer available for other functions.



In configuration mode, the VCM can now be connected with an audio target (e.g. a target group).

The audio target defines the zones for the collective alarm (similar to a call), which starts when the collective alarm button is pressed.

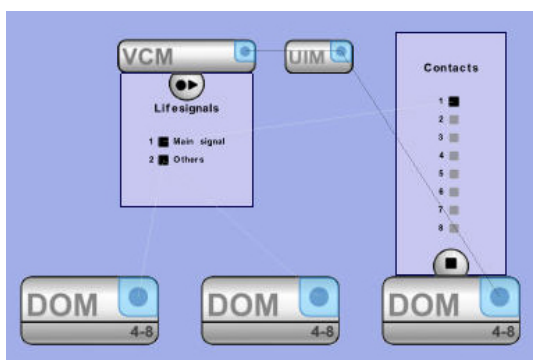
The "Source" selection is intended for future expansions and currently has no function.



Settings for the collective alarm can be configured in the properties of the VCM.

These consist of a limited selection of those available for a normal call.

For detailed information, see the chapter Call.



The VCM can also monitor the functioning of the DOM via a life sign signal.

This requires that a connection be established between the main signal input on the VCM and one of the DOM contacts (connection must be implemented in the hardware).

Every other DOM that should also be monitored by this VCM must be connected to the "Other" connector (no additional hardware connection required).

5.15.2 View Control Modul Konfiguration for VARIODYN® D1 Comprio

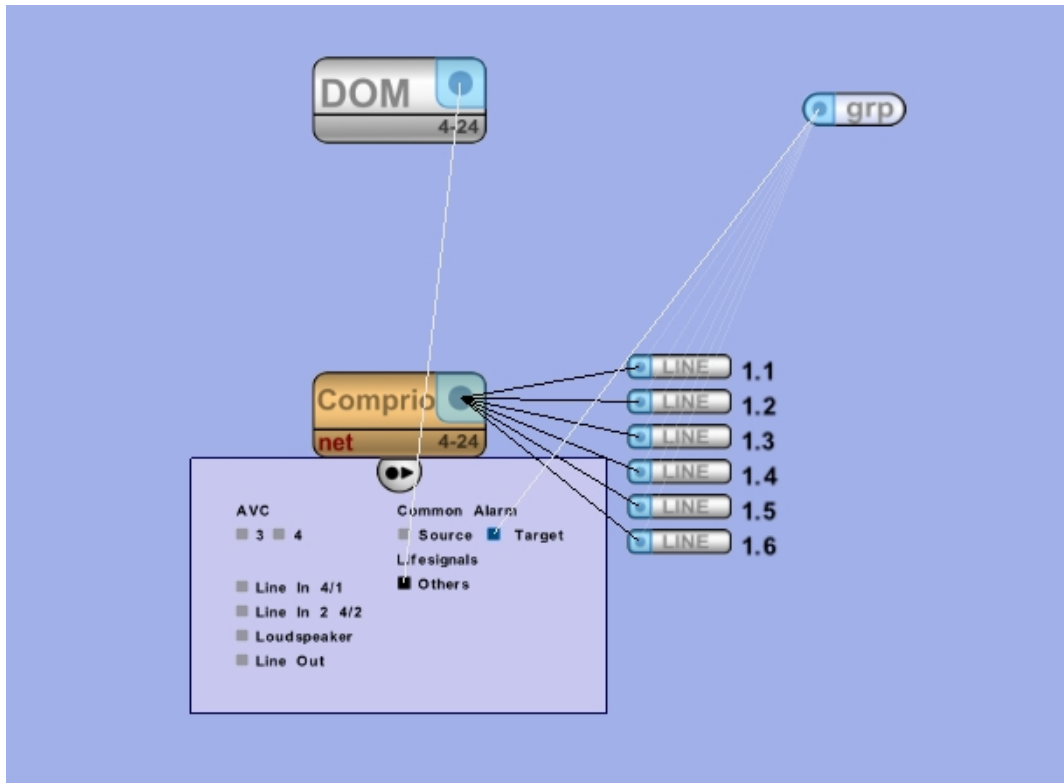
The View Control Module (VCM) is part of the VARIODYN® D1 Comprio, and some of the settings and configurations are performed the same way.

The life sign signal of the VARIODYN® D1 Comprio is automatically monitored by the internal VCM.

In configuration mode, the VCM can now be connected with an audio target (e.g. a target group).

The audio target defines the zones for the collective alarm (similar to a call), which starts when the collective alarm button is pressed.

Additional DOM can be connected to VARIODYN® D1 Comprio 4-8/net, and their life signals monitored, as with the VCM. The LEDs of these devices are also activated during the "LAMP TEST".



VCM	
Name	
Settings	
Volume (dB)	0.0
Loops	<input type="checkbox"/> Forever 1
Log	<input type="checkbox"/>
Call time	<input checked="" type="checkbox"/> Permanent
Presignal	No signal
Source	No signal
AVC	<input checked="" type="checkbox"/>
Conflict management	
Partial connection	<input type="checkbox"/>
Priority	15
Set default values	
Close	

Settings for the collective alarm can be configured in the properties.

These consist of a limited selection of those available for a normal call.

For detailed information, see the section Call.

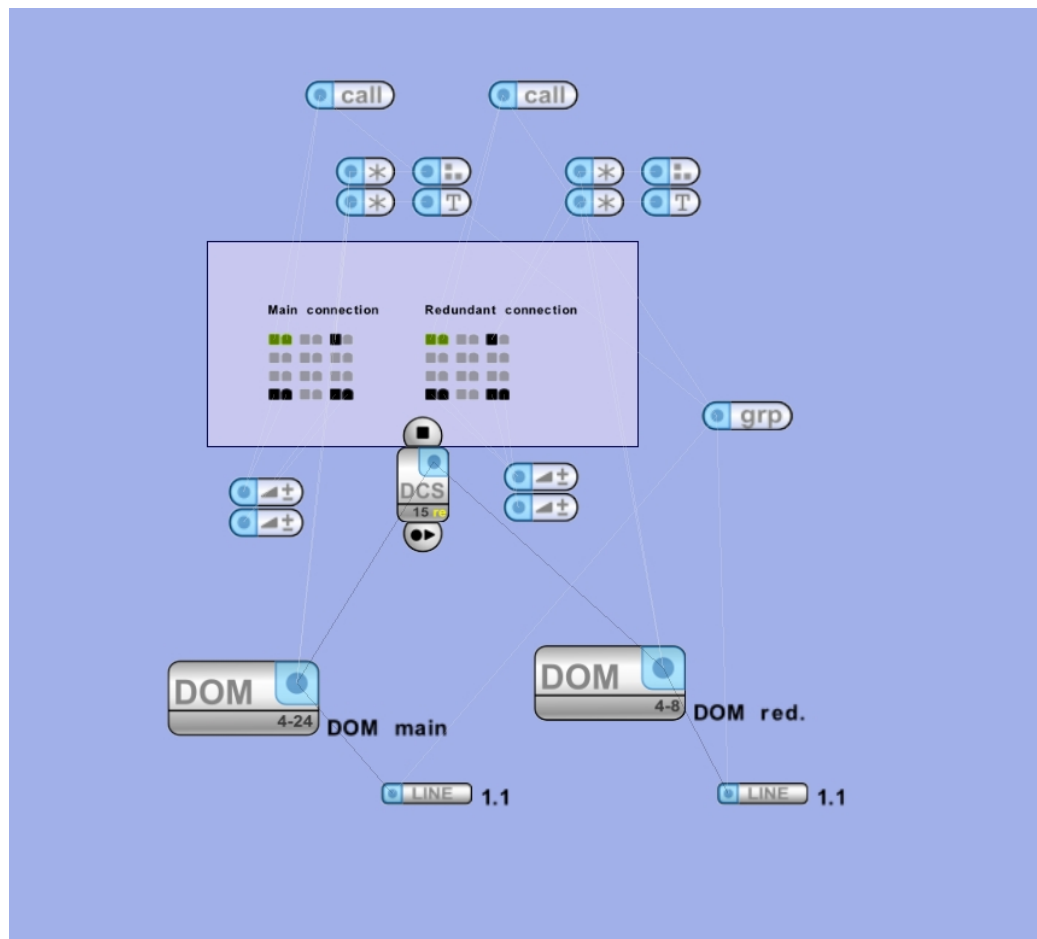
Common Alarm Settings	
Alarm buzzer sound	<input checked="" type="checkbox"/>
AVC	<input checked="" type="checkbox"/>
Call time	<input checked="" type="checkbox"/> Permanent
Loops	<input type="checkbox"/> Forever 1
Presignal	No signal
Log	<input type="checkbox"/>
Source	No signal
Volume (dB)	0.0
Monitored Contacts	

The alarm buzzer can be switched off during microphone operation.

5.16 Configuring redundant DCS

For complete redundancy the complete configuration of the redundant call station in question must be replicated. This is the only way to ensure that the desired functionality is retained in the event of a control unit failure.

This especially applies to evacuation functions.



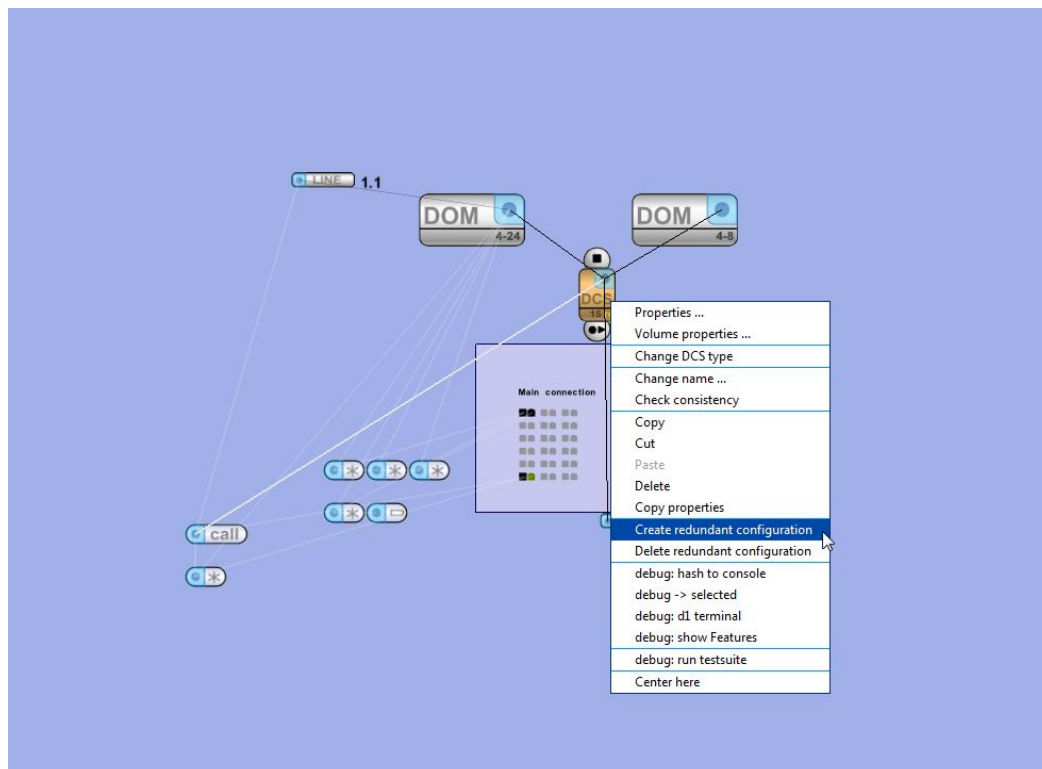
To simplify this process, the redundant configuration is generated automatically. Access the function for the automatic creation of the redundant configuration via the context menu (right-click on the redundant DCS). The designer then creates the redundant configuration for the redundant DCS and all attached DKM18.

If the configuration of the primary call is changed, the redundant part must be recreated with the specified function. If a redundant function of the call is not required, this can also be removed via the context menu.



Do not remove the entire configuration or parts thereof manually.

A redundant DCS can be created from an existing DCS symbol using the "Change DCS type" context menu command. This function is mainly of interest when an existing configuration needs to be reused.

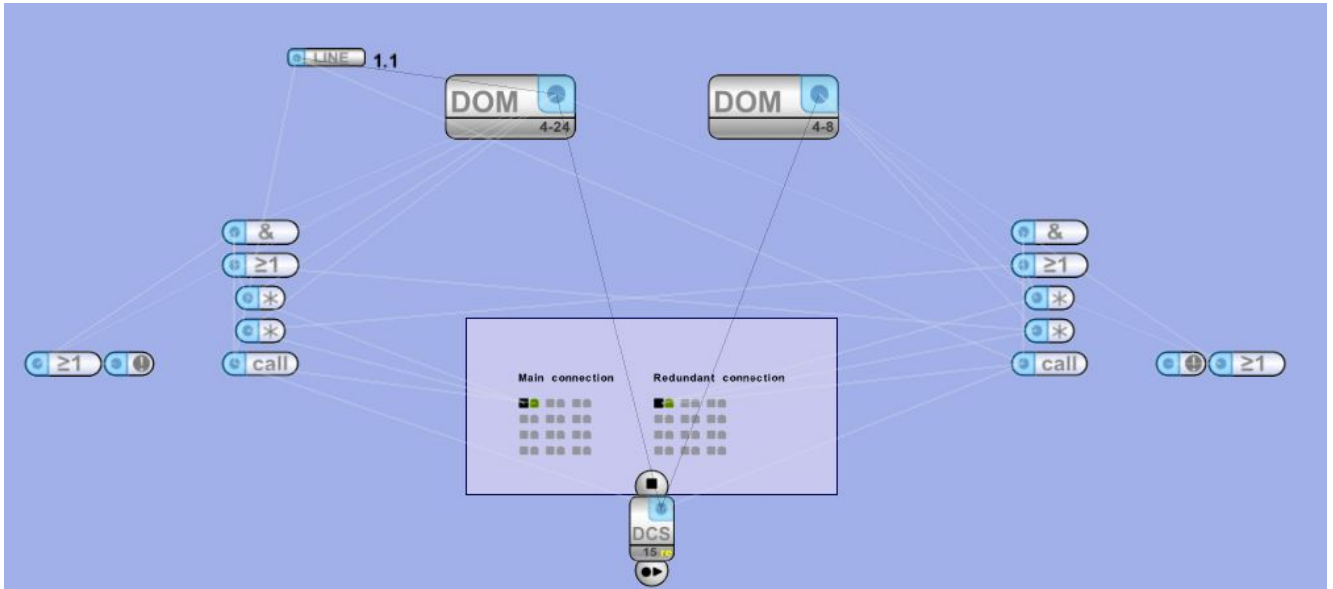


Note that this process is only intended as an aid. It is not possible to guarantee that the automatically created configuration meets the desired functionality. For this reason the automatic configuration must be checked before being imported.

The configuration of logic elements cannot be automated, unfortunately. Inputs and outputs of logic elements must therefore be configured manually.

Calls with key mode "Toggle" must be configured at a redundant DCS. The function "Create redundant configuration" also helps here.

The toggle call can be created on the main page; everything else is done by the Designer. Additional objects are created automatically to ensure that, in the event of an error, an initiated toggle call can be stopped both from the main page and the redundant page.



The DCS redundant functionality requires a minimum of firmware V3.0 to be installed on the control unit.

Changing a redundant configuration:

When changes to a call are required, they must also be applied to the redundant page.

- The entire redundant configuration can be deleted with the menu item "Delete redundant configuration".
- Make the changes to the connection as usual.
- Then recreate the redundant configuration.

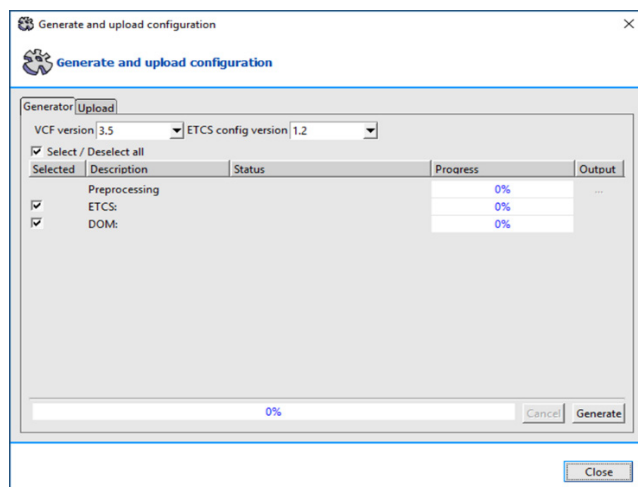
5.17 Loading a Configuration

Every control unit present in the VARIODYN® D1 system is configured individually. This can be performed automatically via VARIODYN® D1 Designer for each control unit individually or for all control units at the same time.



The automatic configuration can only be performed if a network connection exists to all control units / the SCU and if the correct IP address is configured for each control unit / SCU.
(See chapter Commissioning).

5.17.1 Generating a Configuration



The “Generate and upload configuration” tool for loading the configuration can be started from the View menu.

The firmware version present on the control unit (VCF version) must first be selected on the “Generator” tab.

Control units that should not be configured at this time can then be excluded by unchecking the corresponding checkbox.

All control units in the list can be selected using the “Select/Deselect all” check box.

Clicking on the “Generate” button causes the configuration to be created for all selected control units.

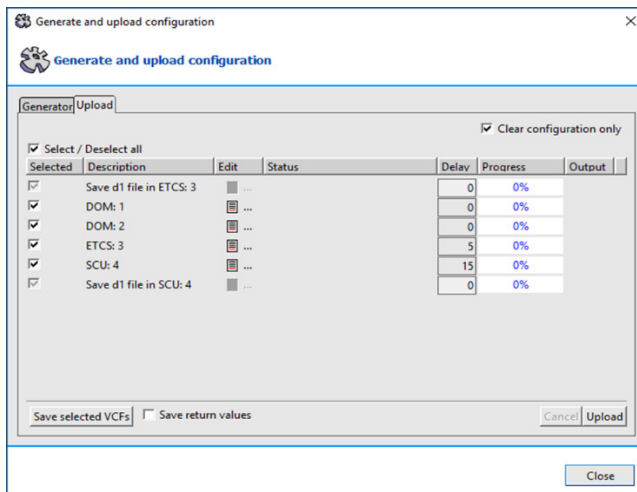
After the configuration has been completely generated (progress bar at 100%), the dialog automatically switches to the “Upload” tab.



Differing firmware versions should only be used on networked control units after consultation with technical support.

After version 1.3.1 (included), ETCS supports Protocol 10.

5.17.2 Uploading a Configuration



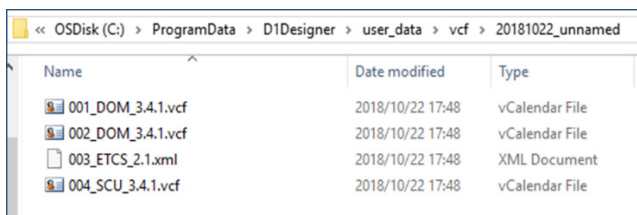
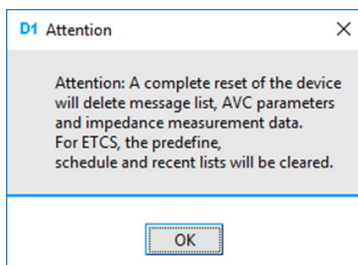
Here as well, it is possible to select whether the configuration should be uploaded to all (recommended) or only specific control units.

Removing the checkmark next to "Clear configuration only" will completely reset control units. Calibrated values, message list entries, and users will also be deleted, and the predefined, schedule and recent lists in the ETCS will be cleared.

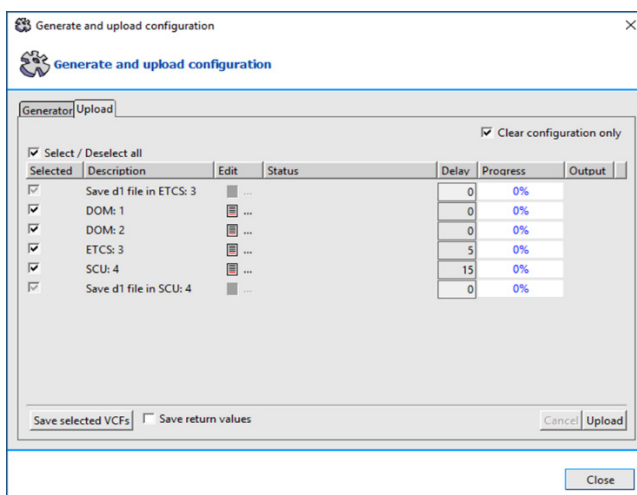
This should always be done in cases of major configuration changes.

Clicking on the "Upload" button then loads the configuration onto all selected control units.

The "Save selected VCFs" button can be used to save selected configuration files in the user_data folder (Default path: C:\ProgramData\D1Designer\user_data\vcf. A unique folder with date and project name is created to store the files.




If the "Save return values" check box is activated, the return values from the control units are also stored in the above folder.



If there is an SCU / ETCS in the project, and the relevant option is activated in the global settings, the designer file is automatically stored in the SCU / ETCS too. If there are several SCU in the project, the "Upload Master" attribute can be used to determine which SCU / ETCS is used for the file creation. If no SCU is selected, the first SCU / ETCS added to the project is used. The configuration can then be read back via the main menu (File → Open from SCU / ETCS).



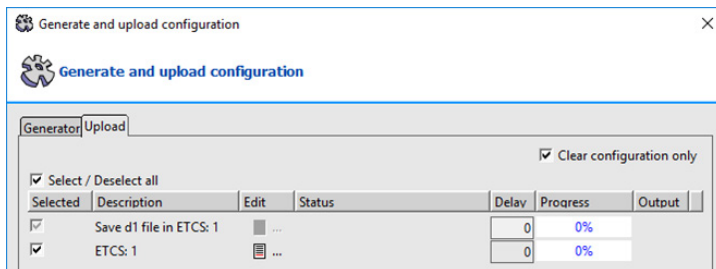
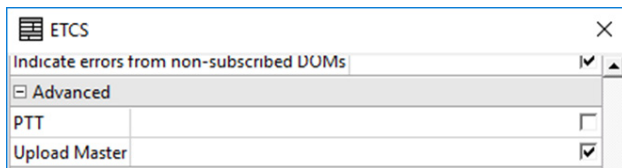
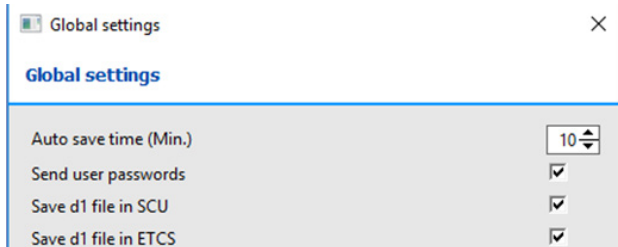
If a connection cannot be established to all control units, please check whether the correct IP addresses are configured and whether all control units can be accessed over the network.

If a red checkmark  appears in the "Output" column after uploading, the control unit did not accept a function. This could be due to an incorrect firmware version or an incorrect entry in the VCF extension dialog of the control unit.

5.18 Configuration for Save and Read

5.18.1 Save d1 file in ETCS

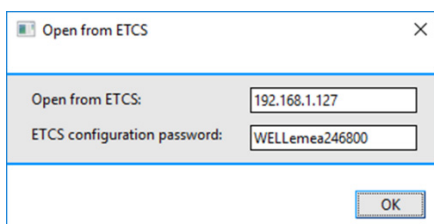
Follow the steps below to save the configuration of the d1 file in an ETCS.



1. Enable "Save d1 file in ETCS"
2. Open the "Global settings" window via the menu item "File > Global settings" and then check the box for "Save d1 file in ETCS".
3. Select an ETCS to save the d1 file
4. Open your d1 project and select an ETCS. Then, open the properties window of this ETCS, and check the box for "Upload Master".
5. Upload d1 file to ETCS
6. Generate a configuration and upload the configuration.

5.18.2 Read back d1 file from ETCS

Follow the steps below to read back the configuration of the d1 file from the ETCS.



1. Click the "Open from ETCS" window via the menu item "File > Open from ETCS".
2. Type in the ETCS IP address and ETCS configuration password, then click "OK".

6 Continued Commissioning



- The following information regarding the further commissioning is intended exclusively to assist appropriately trained specialists upon consultation with technical support!
- Changing this data independently could jeopardize the warranty!

6.1 Accessing the Message List

Every message from the system is entered into a message list. This is saved on each control unit of the network and can be loaded at any time. In order to do this, a connection to the control unit must be established via the terminal program.

```

pt -- 192.168.1.246
File Help

=====
VARIODYN D1 SYSTEM-CONTROL
=====
version: DOM V2.3 release
copyright: av digital 1991 - 2007
device type: DOM4-8
D1 node number: 246
default ip: IP:192.168.1.246/24,GW:192.168.1.1,DNS:192.168.1.1
ethernet mac: 00:0D:1F:01:01:30
serial number: 532656
licence key: AVD
date and time: 2008-10-06 09:36:56
=====

Logon:root
root[0]@(192.168.1.246#246) [ 1+] >mlst
Num Date Time System Message
1 2008/10/03 - 13:10:11 SYS-LO System coldboot, permanent data lost, user command (0x05)
2 2008/10/03 - 13:10:19 SYS-LO logon "root"
3 2008/10/03 - 13:11:07 SYS-LO logout "root"
4 2008/10/03 - 13:11:40 SYS-LO AutoConfig: Assigned own node number to 246.
5 2008/10/06 - 08:46:19 SYS-LO System warmboot, powerfail, crash (0x0A)
6 2008/10/06 - 09:27:45 SYS-LO logon "root"
7 2008/10/06 - 09:34:59 SYS-LO logout "root"
8 2008/10/06 - 09:35:06 SYS-LO logon "root"
9 2008/10/06 - 09:36:43 SYS-LO PA 001.01 ERROR 22kHz CHECK.
10 2008/10/06 - 09:36:46 SYS-LO System messages viewed
11 2008/10/06 - 09:36:50 SYS-LO logon "root"
12 2008/10/06 - 09:36:58 SYS-LO logon "root"
OK
root[0]@(192.168.1.246#246) [ 2+] >

mlst
Cancel [x] Connected [x] Autoscroll

```

The message list should always be checked after a configuration is uploaded so that any errors (such as an incorrectly connected cable) can be corrected immediately.

The entries contain the date and time, the system number of the triggering control unit (SYS-LO always refers to the currently connected control unit) and the message itself.

Messages can be errors on specific devices, user logons or logoffs as well as messages from externally connected devices.

A list of all possible message list entries can be found in the appendix to this document.



If the SCU constantly reports a power error, this could be due to the absence of the 24 V power supply voltage or older hardware without 24 V support. This message can be suppressed (see chapter SCU Energy-Saving Mode Commands)

6.2 Setting the Time and Date

If no automatic synchronisation via TCM or an NTP server takes place, the current time and date must be set once (only necessary in one control unit, which then synchronises the others).

```

pt -- 192.168.1.246
File Help

root[0]@(192.168.1.246#246) [ 1+] >time 13 20 55
OK
root[0]@(192.168.1.246#246) [ 2+] >time
Time: 13:20:58
root[0]@(192.168.1.246#246) [ 3+] >date 2008 10 6
OK
root[0]@(192.168.1.246#246) [ 4+] >date
Date: 2008-10-06, MO
root[0]@(192.168.1.246#246) [ 5+] >

Cancel [x] Connected [x] Autoscroll

```

The time can be queried or set via the "time" command.

"time hours minutes seconds"

The date can be queried or set via the "date" command.

"date year month day"

6.3 Starting a speaker loop

Before "audio" can be played over a connected loop, it must be started up and calibrated.

```

pt -- 192.168.1.246
File Help
root[0]@(192.168.1.246#1) [ 4+] >opmode config
OK
root[0]@DOM3(192.168.1.213#213) [ 8+] >aloopecfg lp 1 start
OK
aloopecfg:LP1 Cmd POWERUP returns success. Action starts in 70s.
LP1: InitBoot powerup, needs 9s to start the loop.
LP1: Start Measuring to check whether Loop IMP matches from both sides after InitBoot
LP1: Start Measuring to check whether Loop IMP matches from both sides after InitBoot
LP1: Powering up primary module 1 relais 1 with measurement
LP1: Powering up primary module 1 relais 2 with measurement
LP1: Powering up primary module 2 relais 1 with measurement
LP1: Powering up primary module 2 relais 2 with measurement
LP1: Powering up primary module 3 relais 1 with measurement
LP1: Powering up primary module 3 relais 2 with measurement
LP1: Powering up primary module 4 relais 1 with measurement
LP1: Powering up primary module 4 relais 2 with measurement
LP1: Powering up primary module 5 relais 1 with measurement
LP1: Powering up primary module 5 relais 2 with measurement
LP1: Start Measuring to check whether Loop IMP matches from both sides after Primary powerup
LP1: Start Measuring to check whether Loop IMP matches from both sides after Primary powerup
LP1: Powerup primary finished, sending STORE_ID cmd to LIM modules...
LP1: Start Measuring to check whether Module ID #1 is correctly set
LP1: Start Measuring to check whether Module ID #5 is correctly set
LP1: All Done Primary.
LP1: Powering up secondary module 1 relais 1 with measurement
LP1: Powering up secondary module 1 relais 2 with measurement
LP1: Powering up secondary module 2 relais 1 with measurement
LP1: Powering up secondary module 2 relais 2 with measurement
LP1: Powering up secondary module 3 relais 1 with measurement
LP1: Powering up secondary module 3 relais 2 with measurement
LP1: Powering up secondary module 4 relais 1 with measurement
LP1: Powering up secondary module 4 relais 2 with measurement
LP1: Powering up secondary module 5 relais 1 with measurement
LP1: Powering up secondary module 5 relais 2 with measurement
LP1: Start Measuring to check whether Loop IMP matches from both sides after Secondary powerup
LP1: Start Measuring to check whether Loop IMP matches from both sides after Secondary powerup
LP1: Entering Operational Mode.

```

Change the operating mode:
"opmode config"

Start loop X with the "aloopecfg lp X start" command. If this is taking place for the first time, all isolators modules (LIM) will be measured individually from both the primary and secondary sides.

This takes about 3 minutes + 30 seconds per isolator for each loop.

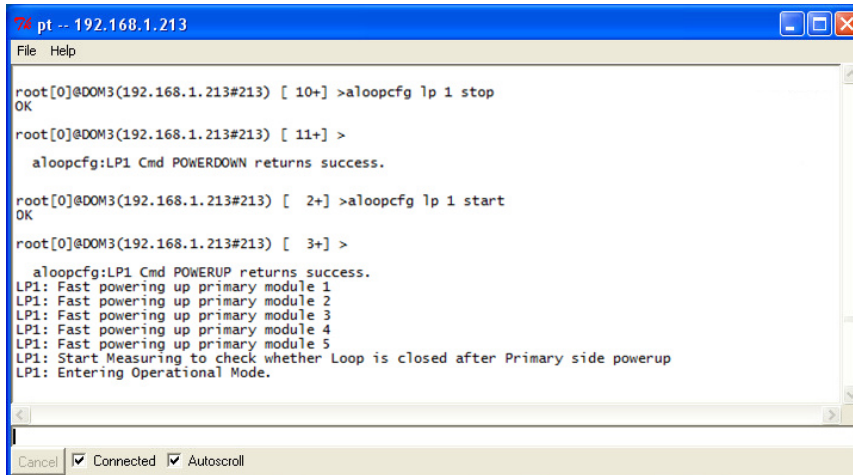
The outputs indicate the current stage of the process.

The message "Entering Operation Mode" indicates that starting of the respective loop is finished.

Afterwards, switch back to the normal operating mode: "opmode normal"

If the loop is not closed or an incorrect number of isolators were specified in the configuration, a loop cannot be started up by the control unit. This is reported with a corresponding message in the output. In principle, the DOM makes 3 attempts to start up a loop. If the third attempt is unsuccessful, the start-up is cancelled.

In this case, the cabling or the isolator of the loop must be inspected and then another start-up attempt made.



```

pt -- 192.168.1.213
File Help

root[0]@DOM3(192.168.1.213#213) [ 10+] >aloopcfg lp 1 stop
OK

root[0]@DOM3(192.168.1.213#213) [ 11+] >
  aloopcfg:LP1 Cmd POWERDOWN returns success.

root[0]@DOM3(192.168.1.213#213) [ 2+] >aloopcfg lp 1 start
OK

root[0]@DOM3(192.168.1.213#213) [ 3+] >
  aloopcfg:LP1 Cmd POWERUP returns success.
LP1: Fast powering up primary module 1
LP1: Fast powering up primary module 2
LP1: Fast powering up primary module 3
LP1: Fast powering up primary module 4
LP1: Fast powering up primary module 5
LP1: Start Measuring to check whether Loop is closed after Primary side powerup
LP1: Entering Operational Mode.
  
```

During start-up or in normal operation, a loop can be shut down at any time with the “`aloopcfg lp X stop`” command (e.g. for maintenance purposes). After a reset or restart of a control unit, all active loops are quickly started up automatically.



After starting of a loop, the line monitoring must also be calibrated (see the next chapter).



To switch back to the normal operating mode: "opmode normal"

For control units that have a replacement amplifier, it is important that all BackupCalls be reactivated manually (csctrl).

If UPS mode is used, this must be tested after the loop is started up.

- Switch the system to UPS mode
- Switch to normal mode after approx. 5 minutes
- Remove a side of the ring loop
- Check on the removed cable whether the operational voltage can be measured > 25 V.

All calibrated impedance individual values of the isolators, the power per segment and the fault to ground of each core in this segment of a loop can be viewed using the "alooopshow lp x" command. This can be done to check loudspeaker outputs and limit fault to ground occurrences in a segment.

```
root[0]@(192.168.1.230#0) [ 21+] >alooopshow lp1
```

```
Isolator Imp: Valid, Mode: ImpAux Thu Oct 9 11:24:57 2014
```

```
Loop ID's: Valid
```

```
correction-factor: 1.900192
```

Primary: SetPT	(Aux)	[W]	EarthA	EarthB	MeasTime
M001R1:	30697.38(-0.00043544)	0.0	>50000	>50000	Thu Oct 9 11:22:17 2014
M001R2:	31551.28(-0.00120399)	0.0	>50000	>50000	Thu Oct 9 11:22:30 2014
M002R1:	34550.15(-0.00123933)	0.0	>50000	>50000	Thu Oct 9 11:22:37 2014
M002R2:	17467.59(-0.00336088)	0.0	>50000	>50000	Thu Oct 9 11:22:50 2014
M003R1:	976.49(-0.00421919)	5.1	673	748	Thu Oct 9 11:22:59 2014
M003R2:	990.43(-0.00586557)	0.0	707	749	Thu Oct 9 11:23:14 2014
M004R1:	984.03(-0.00584124)	0.0	704	748	Thu Oct 9 11:23:23 2014
M004R2:	996.08(-0.00735792)	0.0	746	746	Thu Oct 9 11:23:37 2014
M005R1:	454.79(-0.00784077)	6.3	710	745	Thu Oct 9 11:23:46 2014
M005R2:	453.85(-0.00827838)	0.0	729	749	Thu Oct 9 11:24:01 2014

```
Isolator Imp: Valid, Mode: ImpAux Thu Oct 9 11:27:33 2014
```

```
correction-factor: 1.900192
```

Secondary: SetPT	(Aux)	[W]	EarthA	EarthB	MeasTime
M001R1:	834.89(-0.00105020)	6.3	>50000	>50000	Thu Oct 9 11:25:38 2014
M001R2:	823.66(-0.00230891)	0.0	>50000	>50000	Thu Oct 9 11:25:51 2014
M002R1:	837.40(-0.00290599)	0.0	>50000	>50000	Thu Oct 9 11:25:58 2014
M002R2:	837.67(-0.00455525)	0.0	>50000	>50000	Thu Oct 9 11:26:11 2014
M003R1:	444.84(-0.00508743)	5.5	670	749	Thu Oct 9 11:26:19 2014
M003R2:	441.15(-0.00661799)	0.0	697	743	Thu Oct 9 11:26:34 2014
M004R1:	445.57(-0.00654798)	0.0	697	751	Thu Oct 9 11:26:43 2014
M004R2:	443.58(-0.00802366)	0.0	669	745	Thu Oct 9 11:26:58 2014
M005R1:	444.71(-0.00793169)	0.0	701	754	Thu Oct 9 11:27:06 2014
M005R2:	444.89(-0.00836571)	0.0	701	747	Thu Oct 9 11:27:21 2014

```
21 OK
```

The values shown here can also be used in troubleshooting a failed start-up.

The top list represents the loop viewed from the primary side. The first row shows the impedance with closed 1st relay of the 1st isolator, the 2nd row the 2nd relay of the 1st isolator, the 3rd row of the 1st relay of the 2nd isolator, and so on.

The bottom list contains the impedances measured from the secondary side. These values will very probably all be 0 in event of an error since the measurement was cancelled first.

The location of the error can be determined from this list. If, for example, the impedances no longer change as of a certain point, there could be an interruption or short-circuit (leaving the corresponding relay open) in the loop there or too many isolators were configured. If all values are very high (open), it is possible that the cabling from the control unit to the 1st isolator is damaged. If the impedance falls heavily, there could be a short-circuit after the corresponding relay. If the impedance falls constantly down to the last isolator, too few isolators may have been configured.



The ring loop tries to start no more than three times. If it is unsuccessful, it switches off again with an error message.

To carry out troubleshooting with an active ring loop, startup can be forced using command "alooopcfg lp X start 1". The status in dvstat is then displayed as UpWithError.

- Disconnect one side of the loop from the control unit and check the disconnected cable to determine whether the operating voltage of > 25 V / 22 kHz can be measured. If this is the case, the loop is electrically closed.
- Start playing pink noise, for example, and check acoustically where the problem lies.

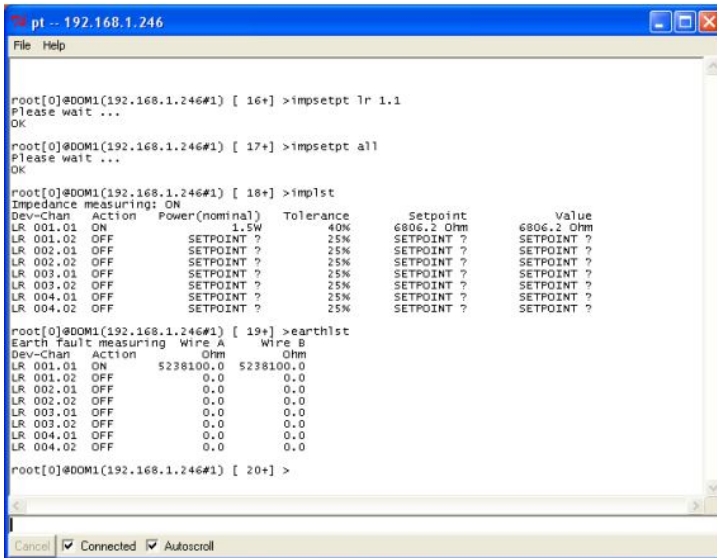


If isolator relays opened during operation on a started-up loop as a result of a short-circuit, their closure can be initiated with the "alooopcfg lp X tryclose" command.

However, if a short-circuit remains, the corresponding relays stay open.

6.4 Calibrating Speaker Lines / Ring loop

Line monitoring is performed in the VARIODYN® D1 system via impedance measurement. For this reason, every speaker line must be calibrated once after it has been correctly connected (all speakers must be present) in order to obtain a reference value.



```

pt -- 192.168.1.246
File Help

root[0]@DDM1(192.168.1.246#1) [ 16* ] >impsetpt lr 1.1
Please wait ...
OK
root[0]@DDM1(192.168.1.246#1) [ 17* ] >impsetpt all
Please wait ...
OK
root[0]@DDM1(192.168.1.246#1) [ 18* ] >implst
Impedance measuring: ON
Dev-Chan Action Power(nominal) Tolerance Setpoint Value
LR 001.01 ON 1.5W 40% 6806.2 Ohm 6806.2 Ohm
LR 001.02 OFF SETPOINT ? 25% SETPOINT ? SETPOINT ?
LR 002.01 OFF SETPOINT ? 25% SETPOINT ? SETPOINT ?
LR 002.02 OFF SETPOINT ? 25% SETPOINT ? SETPOINT ?
LR 003.01 OFF SETPOINT ? 25% SETPOINT ? SETPOINT ?
LR 003.02 OFF SETPOINT ? 25% SETPOINT ? SETPOINT ?
LR 004.01 OFF SETPOINT ? 25% SETPOINT ? SETPOINT ?
LR 004.02 OFF SETPOINT ? 25% SETPOINT ? SETPOINT ?

root[0]@DDM1(192.168.1.246#1) [ 19* ] >earthlst
Earth fault measuring Wire A Wire B
Dev-Chan Action Ohm Ohm
LR 001.01 ON 5238100.0 5238100.0
LR 001.02 OFF 0.0 0.0
LR 002.01 OFF 0.0 0.0
LR 002.02 OFF 0.0 0.0
LR 003.01 OFF 0.0 0.0
LR 003.02 OFF 0.0 0.0
LR 004.01 OFF 0.0 0.0
LR 004.02 OFF 0.0 0.0

root[0]@DDM1(192.168.1.246#1) [ 20* ] >
Cancel ☒ Connected ☒ Autoscroll

```

Change the operating mode: "opmode config"

With the "impsetpt" command, the loops can be calibrated individually or all configured lines can be calibrated together:

impsetpt lr x.y

x..... Amplifier channel (1-4)

y..... Speaker line (1-6)

impsetpt lp x

x..... ring loop (1-4)

impsetpt all

The current measured values can be queried with the "implst" and "earthlst" commands.

The calibration must be performed in each control unit individually and even for backup cables.



Then switch back to the normal operating mode: "opmode normal".

The calibration may take up to 3 minutes per loop.

6.5 Viewing / Adjusting Volumes Online

If the volume of devices (e.g. amplifier channels or audio inputs) must be set after the configuration has been completed, this can also be done with the D1 Designer. The “vol” command lists all currently configured volume values.

```

root[0]@DOM3(192.168.1.213#213) [ 10+] >vol
Dev-Chan  VolDev  [VolMin  VolMax  VolAlarm]  VolBase + Vol AV + VolTV1 Program + VolTV2 Program + VolConnect
PR 001.01  0.0dB  -80.0dB  6.0dB  ( 0.0dB)  0.0dB  0.0dB  0.0dB  -  0.0dB  -  0.0dB
PR 001.02  0.0dB  -80.0dB  6.0dB  ( 0.0dB)  0.0dB  0.0dB  0.0dB  -  0.0dB  -  0.0dB
PR 002.01  0.0dB  -80.0dB  6.0dB  ( 0.0dB)  0.0dB  0.0dB  0.0dB  -  0.0dB  -  0.0dB
PR 002.02  0.0dB  -80.0dB  6.0dB  ( 0.0dB)  0.0dB  0.0dB  0.0dB  -  0.0dB  -  0.0dB
PR 041.01  0.0dB  -60.0dB  6.0dB  ( 0.0dB)  0.0dB  0.0dB  0.0dB  -  0.0dB  -  0.0dB
PR 041.02  0.0dB  -60.0dB  6.0dB  ( 0.0dB)  0.0dB  0.0dB  0.0dB  -  0.0dB  -  0.0dB
PA 001.01  0.0dB  -60.0dB  6.0dB  ( 0.0dB)  0.0dB  0.0dB  0.0dB  -  0.0dB  -  0.0dB
PA 002.01  0.0dB  -60.0dB  6.0dB  ( 0.0dB)  0.0dB  0.0dB  0.0dB  -  0.0dB  -  0.0dB
PA 003.01  0.0dB  -60.0dB  6.0dB  ( 0.0dB)  0.0dB  0.0dB  0.0dB  -  0.0dB  -  0.0dB
PA 004.01  0.0dB  -60.0dB  6.0dB  ( 0.0dB)  0.0dB  0.0dB  0.0dB  -  0.0dB  -  0.0dB
PA 041.01  0.0dB  -60.0dB  6.0dB  ( 0.0dB)  0.0dB  0.0dB  0.0dB  -  0.0dB  -  0.0dB
PA 042.01  0.0dB  -60.0dB  6.0dB  ( 0.0dB)  0.0dB  0.0dB  0.0dB  -  0.0dB  -  0.0dB
SG 001.01  0.0dB  -60.0dB  6.0dB  ( 0.0dB)  0.0dB  0.0dB  0.0dB  -  0.0dB  -  0.0dB

root[0]@DOM3(192.168.1.213#213) [ 11+] >

```

The actual volume of a device, designated VolDev, is comprised of multiple cumulative values:

VolBase Base volume set via D1 Designer

Vol AV Intervention of the automatic volume control (AVC)

VolTV Program..... Time-based volume control

VolConnect..... Configured call volume

The minimum and maximum configured limits are also shown here – the VolDev values always lies within this range.

VolAlarm shows the configured alarm volume. Only active when no brackets are set.

To make changes to the base volume, the “vol” command must be entered with additional parameters: vol device number.channel volume (e.g. vol pa 1.1 -5)

Which device and which number or channel stands for which input or output see chapter system overview.



The changes must also be subsequently entered into the D1 Designer project so that the correct values are configured if the entire configuration is reloaded.

6.6 Calibrating / Configuring AVC

In order for the automatic volume control to function properly, each AVC input must be calibrated as part of a learning phase. There are 3 different operating modes that can be selected later:

- **Dynamic:**
Volume control takes place continuously even during a call (e.g. background music). The system recognises its own audio signal being played and only regulates the volume based on interfering noises.
- **Freeze:**
Volume regulation takes place only while no call is active. In this case, regulation during sustained audio output (e.g. background music) will not be possible.
- **Level-dependent**
- Volume control also takes place during calls (e.g. background music), but only if the audio signal falls below a configurable level, e.g. during pauses or quiet passages.

```
root[0]@(192.168.1.199#199) [ 27+] >dvavp av 1.1
AV 001.01 Parameter
activation: 0
integration time fall: 5000ms
integration time rise: 1000ms
maximum control level: 0.0dB
minimum control level: -20.0dB
sensor deviation: 0.0dB
reaction level: 60.0dB
scale factor: 1.0
freezemode holdtime: 15
OK
```

Please make certain that the parameter “activation” of the ALR input is set to 0 = off.
If necessary, this can be changed with the “dvavp av 1.1 act 0” command.

```
root[0]@(192.168.1.199#199) [ 28+] >atact22glob off
OK
```

To avoid disruptions, the amplifier monitoring should be deactivated during the calibration phase.
“atact22glob off”

```
root[0]@(192.168.1.199#199) [ 29+] >cslst
Talk Key: Dest-Elem Source-Chan
001( Sprechen1) LO DO 120 LO AI 041 ---
002( Sprechen2) LO DO 120 LO AI 043 ---
003( Musik) LO DO 120 LO AI 045 ---
004( ALR-Stumm) LO DO 121 LO AI 042 ---
005( ALR-Rauschen) LO DO 121 LO AI 031 017
OK
root[0]@(192.168.1.199#199) [ 30+] >csctrl 4 on
OK
root[0]@(192.168.1.199#199) [ 31+] >dvavfb av 1.1 learnallpa
Please wait ...
OK
root[0]@(192.168.1.199#199) [ 32+] >csctrl 4 off
OK
```

Use “cslst” to check the numbers of both calls (silence / pink noise), which were previously created with the Designer software.
(See chapter Automatic Volume Control)

*Start AVC silence with “csctrl x on”.
Calibrate the AVC input: “dvavfb av x.1 learnallpa”
*Stop AVC silence with “csctrl x off”.



Brief but clearly audible signals are generated at the full output level.

```
root[0]@(192.168.1.199#199) [ 33+] >csctrl 5 on
OK
root[0]@(192.168.1.199#199) [ 39+] >dvavfb av 1.1 level
LAVMeasSensor 62.6dB
LAVMeasSensor 62.7dB
LAVMeasSensor 62.7dB
LAVMeasSensor 62.3dB
OK
root[0]@(192.168.1.199#199) [ 40+] >csctrl 5 off
OK
```

Start AVC pink noise with “csctrl x on”.
Query the sensor value => Calculate an approximate average of the 4 values.
Stop AVC pink noise with “csctrl x off”.

The queried sensor values must now be used to calculate the correct reaction level:

Reaction level = sensor value – (max level deviation – min level deviation) – SNR + sensor deviation

SNR..... Desired difference between signal and noise level (10 dB recommended)

Level deviation Values configured via D1 Designer

Sensor deviation..... Values configured via D1 Designer (0 dB recommended)

Example: SNR = 10dB

Reaction level = 63dB – (0dB – (-15dB)) – 10dB + 0dB = 63dB – 15dB – 10dB = **38dB**



To adapt the volume control precisely to the specific conditions, the sensor value should be queried during business hours (the system must not output anything). The sensor value is then the noise level of the respective zone while occupied with people.

```

root[0]@DOM12(192.168.1.12#12) [ 52+] >dvavp av 1.1 act 1
OK
root[0]@DOM12(192.168.1.12#12) [ 53+] >dvavp av 1.1 react_level 38
OK
root[0]@DOM12(192.168.1.12#12) [ 61+] >vol

Dev-Chan   VolDev   [VolMin   VolMax]   VolBase + Vol AV + VolTV1 Program
PR 001.01   0.0dB   -80.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -
PR 001.02   0.0dB   -80.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -
PR 002.01   0.0dB   -80.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -
PR 002.02   0.0dB   -80.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -
PR 041.01   0.0dB   -80.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -
PR 041.02   0.0dB   -80.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -
PA 001.01  -20.0dB  -60.0dB   6.0dB     0.0dB  -20.0dB  -6.0dB   1
PA 002.01   0.0dB   -60.0dB   6.0dB     0.0dB   0.0dB  -6.0dB   1
PA 041.01   0.0dB   -60.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -
PA 042.01   0.0dB   -60.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -
SG 001.01   0.0dB   -60.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -

root[0]@DOM12(192.168.1.12#12) [ 64+] >vol

Dev-Chan   VolDev   [VolMin   VolMax]   VolBase + Vol AV + VolTV1 Program
PR 001.01   0.0dB   -80.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -
PR 001.02   0.0dB   -80.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -
PR 002.01   0.0dB   -80.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -
PR 002.02   0.0dB   -80.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -
PR 041.01   0.0dB   -80.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -
PR 041.02   0.0dB   -80.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -
PA 001.01  -10.7dB  -60.0dB   6.0dB     0.0dB  -10.7dB  -6.0dB   1
PA 002.01   0.0dB   -60.0dB   6.0dB     0.0dB   0.0dB  -6.0dB   1
PA 041.01   0.0dB   -60.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -
PA 042.01   0.0dB   -60.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -
SG 001.01   0.0dB   -60.0dB   6.0dB     0.0dB   0.0dB   0.0dB   -

```

Activate AVC:
 Dynamic mode: act 1
 Freeze mode: act 2
 Level-dependent mode: act 3
 Set the reaction level.

When the room is silent, the volume should now be regulated to the minimum value.

If ambient noise is present in the room, the regulated value should adapt accordingly (increase).
 Then reactivate amplifier monitoring: "atac22glob on"

With level-dependent control, the minimum difference between the played audio signal and the signal received on the AVC microphone can be changed. This is configured with the "dvavp av x.1 min_diff level" command. A large difference (approx. 40-50 dB) means that regulation takes place only during pauses in the audio signal; a smaller difference that regulation takes place even during quiet passages of the audio signal. This must be adjusted and checked individually for each AVC.



Reactivate the amplifier monitoring, and enter the reaction level that has just been calculated and configured into the Designer project so that an incorrect value is not loaded the next time the configuration is changed.

It is not possible to change the acoustic arrangement of the speakers and microphones without performing another measurement. Even changing the direction in which sound is emitted can significantly affect the AVC function!

Acoustic areas must not overlap. If one speaker zone influences the acoustic area of another speaker zone regulated by AVC, this influence is interpreted as a disrupting signal. This results in incorrect functioning (for example, the volume is regulated to maximum).

6.7 Additional Commands

The following control unit terminal commands can be useful during the commissioning process (if required for support services). More detailed descriptions of these and all other commands can be found in the Command Reference.

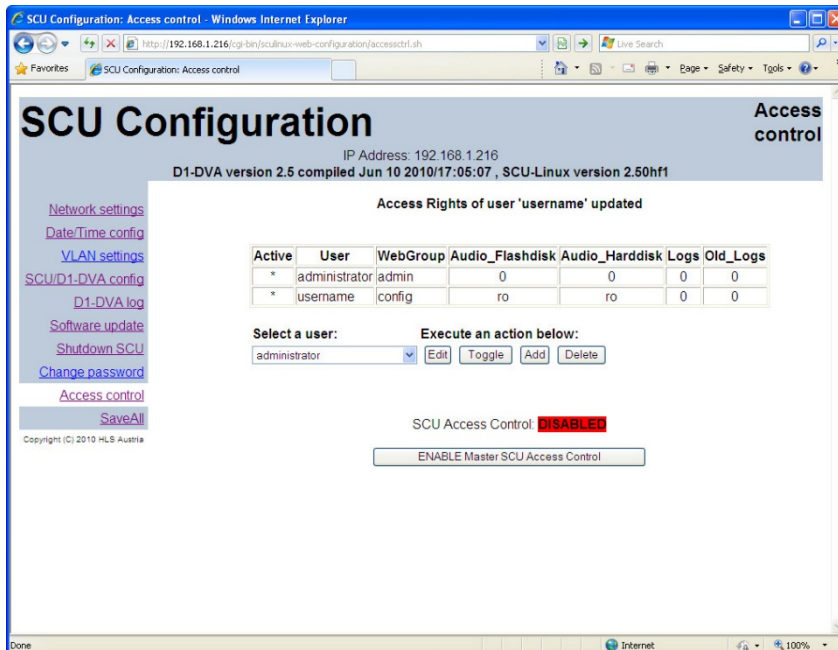
apropos	Finding commands via the text search function
man	Brief description of a command
constat	Displays the currently active calls
cslst	Lists all configured calls for identification via constat
dspstat	Queries the DSP capacity utilisation
ver	Queries the software version (control unit, DCS, UIM)
sysstat	Status of all control units in the network
dvstat	Status of all configured control unit components

6.8 SCU Access Control

If necessary, the SCU can be secured against unauthorised access. This is done via the SCU Web interface.

6.8.1 Management

Enter the IP address of the SCU into an Internet browser and select “Access control”.

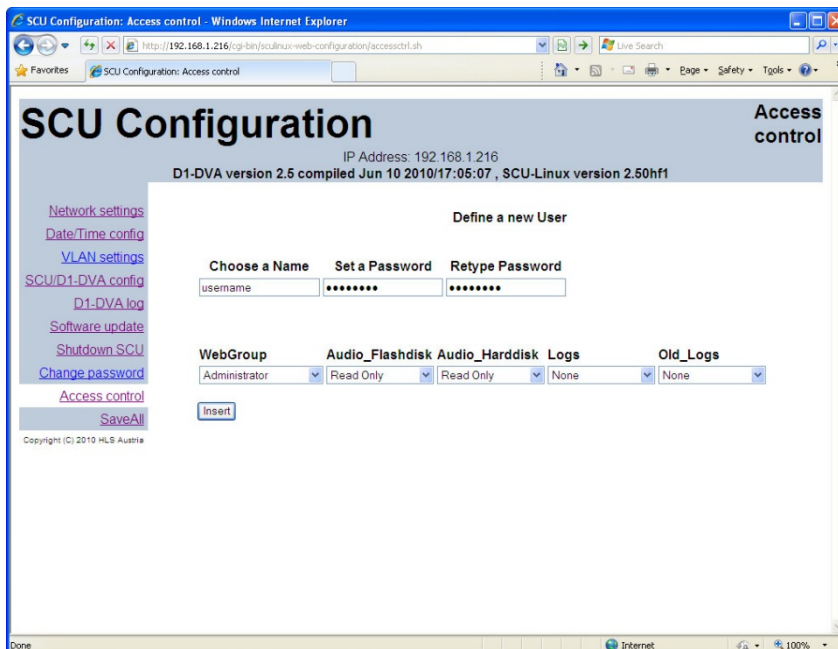


Users can be created, modified or deleted here.

Specific permissions for the Web interface and access to the file shares on the SCU can be assigned to each user.

After creation of a user, the user must be activated or deactivated again with the “Toggle” button.

In order for the access control to function, it must be enabled. To do this, click the “ENABLE...” button.



If a user is created or changed, it is necessary to assign a user name and password (only for creation) as well as the permissions.

It is possible here to differentiate between accesses to the Web interface and read and/or write access to the internal directories of the SCU.

WebGroups:

- Administrator – all permissions
- Configurator - only changing of the IP address, VLAN settings and D1 DVA configuration
- Operator - only changing of the DVA configuration
- Watcher - only viewing of the settings
- Except for “none”, all groups are permitted to view the logs

6.8.2 Changing a Password

The password of the currently logged-in user can be changed on the “Change password” page (only possible if access control is enabled).

The current password must be entered, and the new password must be entered twice.



After completing all changes, they should always be saved with SaveAll. The SCU only automatically saves changes every 60 minutes.

6.8.3 Password Update

All end users are recommended to change their passwords periodically at the very minimum of every 90 days. The steps of changing password are shown below.

1. Open your d1 project file.
2. Open “ETCS user management” dialog.
3. Select the corresponding user and change their password.
4. Click “OK” button to close the dialog.
5. Upload new configuration to ETCS. (see chapter “Loading a Configuration”)
6. Save your d1 project file.

7 Operating System Updates

The most recent operating system files can be downloaded from the customer area at www.hls-austria.com or www.esser-systems.com.



An operating system update should only be performed if absolutely necessary or if recommended by the manufacturer!

7.1 Control unit operating System Update

The new operating system file (*.hex) must be made available via a Web server (e.g. as freeware download) on the service PC. Then the file must be flashed onto the control unit via the D1 terminal.



- Do not shut down the control unit or interrupt network connections during the update. Otherwise in some cases, the function is no longer available and the control unit can only be flashed by the manufacturer.
- All previously installed configurations and measured values are lost upon loading of the new operating system!

```
root[0]@(192.168.1.246#1) [ 2+] >update firmware http://192.168.1.200/dom_v2.3_release.hex
Important information:
*) During the update process do not remove network connection!
*) Before you start the update procedure ensure the DGM is not
  heavy loaded with network load.
*) The update procedure consists of three phases.
  1) loading the update file from a webserver to the internal memory
  2) verifying the loaded update file
  3) flashing the new update file

-----
STEP 1 --> Loading the update file from webserver to the internal memory
Connecting to server '192.168.1.200' at port 80, ... established
HTTP request file '/dom_v2.3_release.hex'
Allocating 1000000 bytes space ... at [043174fc] done.
Allocating 10000000 bytes temporary program buffer ... at [0440b76c] done.
Loading update file .....
8051560 bytes read.

Process HTTP response:
Server returned 231 bytes:
HTTP/1.0 200 OK
Server: aixd/1.1 (win32)
Accept-Ranges: bytes
Date: Tue, 14 Oct 2008 11:54:32 GMT
Last-Modified: Tue, 27 May 2008 12:24:56 GMT
Content-Type: application/octet-stream
Content-Length: 8051325
Connection: close
```

Start the flash process with the
“update firmware
http://PC_IP_Address/Filename.hex”
command.

The file is loaded from the
service PC.

```
STEP 2 --> verifying the loaded update file
Processing the content file '/dom_v2.3_release.hex'
Checking the file ...
checked line 10000
checked line 20000
checked line 30000
checked line 40000
checked line 50000
checked line 60000
checked line 70000
checked line 80000
checked line 90000
checked line 100000
File checking successful in 14.5 seconds.
```

The control unit verifies the file.

STEP 3 --> flashing the new firmware

!! ATTENTION !!
The flash procedure will take about 10 minutes!
Do NOT disable the DOM until the DOM replies "flashing successful".
If the DOM loose power during the flash procedure, the firmware of the device is left in an unusable damaged state and the DOM has to be sent to av-digital for service.

START UPDATE: yes / no

yes

☒ Connected ☒ Autoscroll

The flashing must be started by entering "yes".

START UPDATE: yes / no

yes

Flashing the file ...
flashed line 10000 addr[0004e160]
flashed line 20000 addr[0009c2c0]
flashed line 30000 addr[000ea420]
flashed line 40000 addr[00138580]
flashed line 50000 addr[001866e0]
flashed line 60000 addr[005da660]
flashed line 70000 addr[006287c0]
flashed line 80000 addr[00676920]
flashed line 90000 addr[006c4a80]
flashed line 100000 addr[00712be0]
Flashing successful in 321.4 seconds.

Update procedure finished.

RESTART DOM now and load new firmware? yes / no

yes

resetting ...

The operating system update is completed when "flashing successful" appears and you are asked whether to perform an automatic restart.



- If "Flashing successful" does not appear, please repeat the flash process without disconnecting the control unit from its power supply or restarting it.
- Otherwise, it is possible that the function is no longer available and the control unit can only be flashed by the manufacturer!

7.2 Sisy firmware

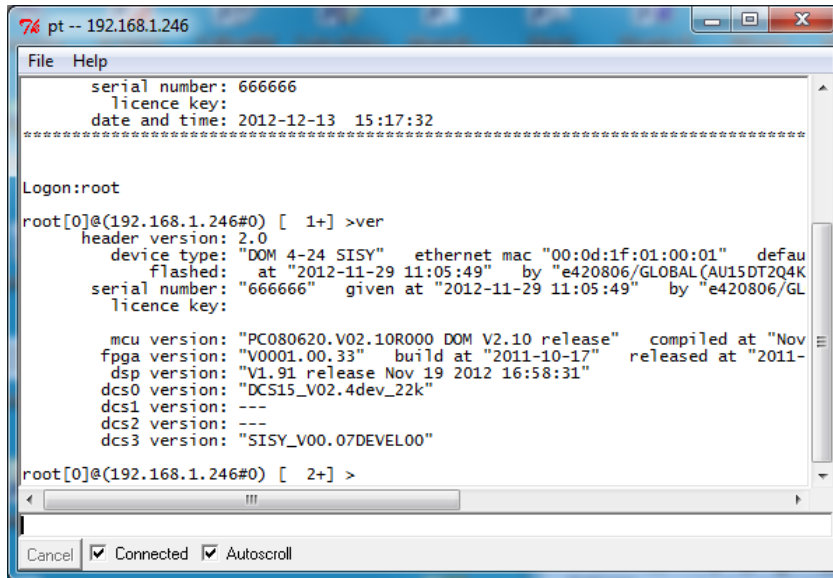
Before using the Sisy firmware with VARIODYN® D1 Comprio, a firmware update must be carried out.

The following data is required on the service PC for this process:

To install a Sisy firmware update, the PC must have the following tools.

- WebServer (as freeware download)
- D1Terminal

Software version **PC080620.V02.10R000** and higher is required for a Sisy firmware update.



```

74 pt -- 192.168.1.246
File Help
serial number: 666666
licence key:
date and time: 2012-12-13 15:17:32
*****
Logon:root
root[0]@(192.168.1.246#0) [ 1+] >ver
header version: 2.0
device type: "DOM 4-24 Sisy" ethernet mac "00:0d:1f:01:00:01" defau
flashed: at "2012-11-29 11:05:49" by "e420806/GLOBAL(AU15DT2Q4K
serial number: "666666" given at "2012-11-29 11:05:49" by "e420806/GL
licence key:

mcu version: "PC080620.V02.10R000 DOM V2.10 release" compiled at "Nov
fpga version: "V0001.00.33" build at "2011-10-17" released at "2011-
dsp version: "V1.91 release Nov 19 2012 16:58:31"
dcs0 version: "DCS15_V02.4dev_22k"
dcs1 version: ---
dcs2 version: ---
dcs3 version: "SISY_V00.07DEVELO0"
root[0]@(192.168.1.246#0) [ 2+] >
Cancel ☒ Connected ☒ Autoscroll

```

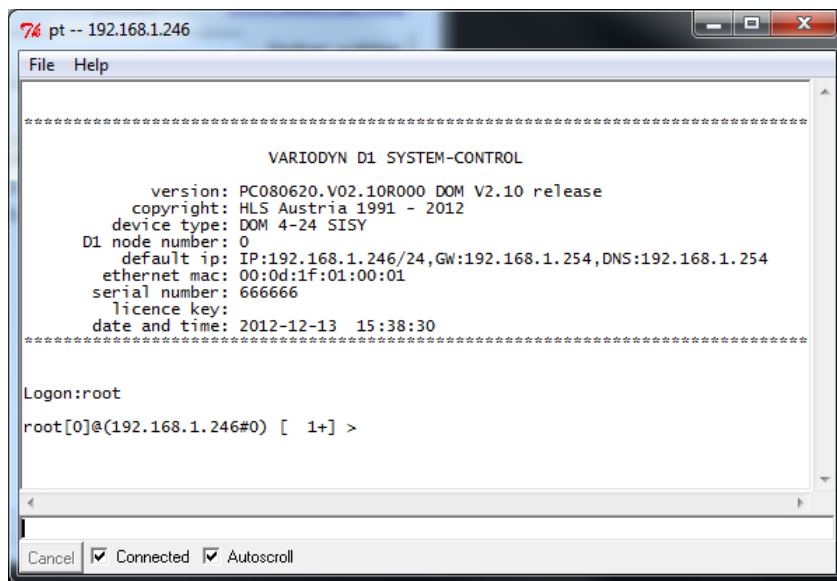
7.2.1 Sisy firmware update

The firmware file extension for the interface/Sisy circuit board is "*.bnm".

The Sisy firmware is loaded in the VARIODYN® D1 Comprio with a web server and then installed in the D1 terminal using command **update**.

- Start **WebServer**
- Under "IP address", search for the local IP address of the PC.
- Under "Select folder", search for the folder containing the *.bnm file for the Sisy firmware.

- Start **D1Terminal**



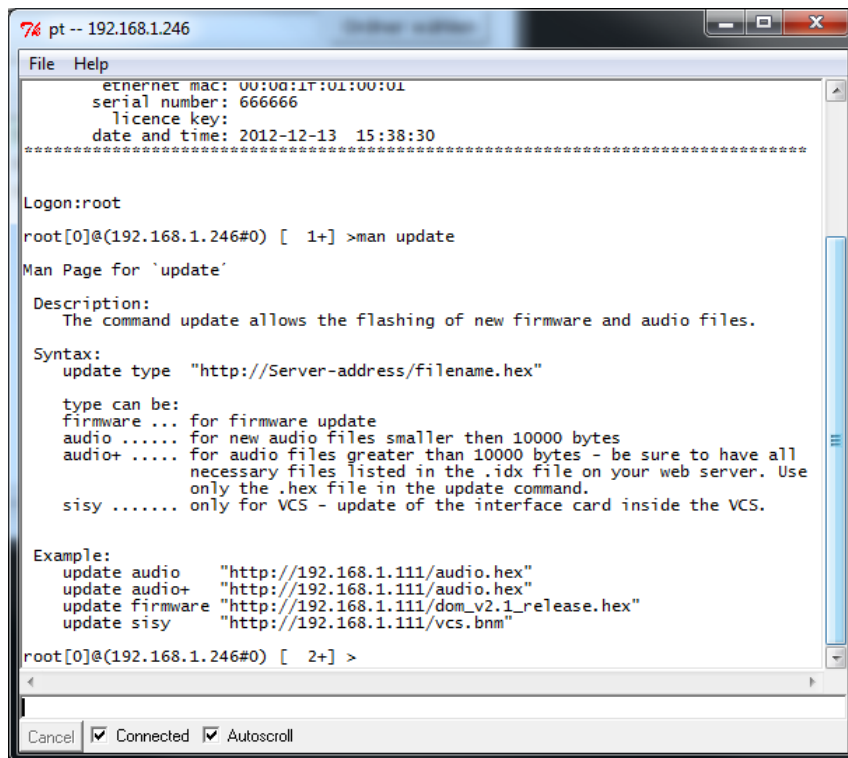
```

74 pt -- 192.168.1.246
File Help
*****
                VARIODYN D1 SYSTEM-CONTROL
        version: PC080620.V02.10R000 DOM V2.10 release
        copyright: HLS Austria 1991 - 2012
        device type: DOM 4-24 SISK
D1 node number: 0
        default ip: IP:192.168.1.246/24,GW:192.168.1.254,DNS:192.168.1.254
        ethernet mac: 00:0d:1f:01:00:01
        serial number: 666666
        licence key:
        date and time: 2012-12-13 15:38:30
*****

Logon:root
root[0]@(192.168.1.246#0) [ 1+] >

```

- Logon is **root**



```

74 pt -- 192.168.1.246
File Help
        ethernet mac: 00:0d:1f:01:00:01
        serial number: 666666
        licence key:
        date and time: 2012-12-13 15:38:30
*****

Logon:root
root[0]@(192.168.1.246#0) [ 1+] >man update
Man Page for `update`

Description:
        The command update allows the flashing of new firmware and audio files.

Syntax:
        update type "http://Server-address/filename.hex"

        type can be:
        firmware ... for firmware update
        audio ..... for new audio files smaller then 10000 bytes
        audio+ ..... for audio files greater than 10000 bytes - be sure to have all
                        necessary files listed in the .idx file on your web server. Use
                        only the .hex file in the update command.
        sisy ..... only for VCS - update of the interface card inside the VCS.

Example:
        update audio  "http://192.168.1.111/audio.hex"
        update audio+ "http://192.168.1.111/audio.hex"
        update firmware "http://192.168.1.111/dom_v2.1_release.hex"
        update sisy   "http://192.168.1.111/vcs.bnm"

root[0]@(192.168.1.246#0) [ 2+] >

```

- Use command **update sisy** "**http://192.168.1.12/vcs.bnm**" to load the new firmware.
- **192.168.1.12** is an example of the IP address for the local PC from which the .bnm file is being loaded.
- **Vcs.bnm** is an example of the name of the firmware file.


```

74 pt -- 192.168.1.246
File Help

root[0]@(192.168.1.246#0) [ 2+] >update sisy "http://192.168.1.12/sisy_v00.01testrel.bnm"

Important information:
*) During the update process do not remove network connection!
*) Before you start the update procedure ensure the DOM is not
   heavily loaded with network load.
*) The update procedure consists of three phases.
   1) loading the update file from a webserver to the internal memory
   2) verifying the loaded update file
   3) flashing the new update file

-----
STEP 1 --> Loading the update file from webserver to the internal memory

Connecting to server '192.168.1.12' at port 80, ... established
HTTP request file '/sisy_v00.01testrel.bnm'

Allocating 1000000 bytes space ... at [0473d4ac] done.
Allocating 10000000 bytes temporary program buffer ... at [0483171c] done.

Loading update file
38607 bytes read.

Process HTTP response:
Server returned 229 bytes:
HTTP/1.0 200 Ok
Server: aidex/1.1 (Win32)
Accept-Ranges: bytes
Date: Thu, 13 Dec 2012 13:44:17 GMT
Last-Modified: Thu, 13 Dec 2012 11:32:36 GMT
Content-Type: application/octet-stream
Content-Length: 38374
Connection: close

STEP 2 --> verifying the loaded update file

Processing the content file '/sisy_v00.01testrel.bnm'
Checking the file ...
File checking successful in 0.1 seconds.

STEP 3 --> flashing the new firmware

!! ATTENTION !!
The flash procedure will take about 1 minute!
Do NOT disable the DOM until it replies with "flashing successful".
If the DOM loses power during the flash procedure, the firmware of
the device is left in an unusable damaged state and has to be
sent back to your local distributor for service.

START UPDATE: yes / no

Cancel ☒ Connected ☒ Autoscroll

```

- Confirm the update with **yes** when prompted

```

pt -- 192.168.1.246
File Help
STEP 1 --> Loading the update file from webserver to the internal memory
Connecting to server '192.168.1.12' at port 80, ... established
HTTP request file '/sisy_v00.01testrel.bnm'
Allocating 1000000 bytes space ... at [0473d4ac] done.
Allocating 10000000 bytes temporary program buffer ... at [0483171c] done.
Loading update file
38607 bytes read.
Process HTTP response:
Server returned 229 bytes:
HTTP/1.0 200 Ok
Server: aixex/1.1 (win32)
Accept-Ranges: bytes
Date: Thu, 13 Dec 2012 13:44:17 GMT
Last-Modified: Thu, 13 Dec 2012 11:32:36 GMT
Content-Type: application/octet-stream
Content-Length: 38374
Connection: close
STEP 2 --> verifying the loaded update file
Processing the content file '/sisy_v00.01testrel.bnm'
Checking the file ...
File checking successful in 0.1 seconds.
STEP 3 --> flashing the new firmware
!! ATTENTION !!
The flash procedure will take about 1 minute!
Do NOT disable the DOM until it replies with "flashing successful".
If the DOM loses power during the flash procedure, the firmware of
the device is left in an unusable damaged state and has to be
sent back to your local distributor for service.
START UPDATE: yes / no
yes
Sending Flash Request
Flashed line 50 addr[00000600]
Flashed line 100 addr[00000c40]
Flashed line 150 addr[00001280]
Flashed line 200 addr[000018c0]
Flashed line 250 addr[00001f00]
Flashed line 300 addr[00002540]
Flashed line 350 addr[00002b80]
Flashed line 400 addr[000031c0]
Flashed line 450 addr[00003800]
Flashing Sisy successful in 63.1 seconds.
Restart Sisy and load new SW ?: yes / no
Cancel ☒ Connected ☒ Autoscroll

```

- Restart the Sisy firmware when prompted again
- Use command **ver** to check the firmware version in the D1 terminal.

7.3 Flashing redundant DCS

New firmware can also be loaded in the redundant DCS call station via the main connection similarly to the DOM and Sisy firmware.

A minimum of firmware V3.0 must be available in the control unit in order to flash. The following data is required on the service PC for this process:

- **MiniWebServer**
- **D1Terminal**

The call station must already be configured in the control unit in order to flash this station. This can either take place via the designer or in the terminal with command `dvconf lo lo ds #dal-nr 0 0 3`, where **#dal-nr** stands for the corresponding DAL port (1–4).

The firmware file extension for the DCS is `".ldr"`. The firmware is loaded in the control unit with a web server and then installed in the D1 terminal using the `update` command.

- Connect the call station to the main DAL and configure it.
- Start **MiniWebServer**.
- Under "IP address", search for the local IP address of the PC.
- Under "Select folder", search for the folder containing the `".ldr"` file for the firmware.
- Start **D1Terminal**.

```

76 pt -- 192.168.1.228
File Help
Logon:root
root[0]@228(192.168.1.228#228) [ 1+] >man update
Man Page for 'update'
Description:
  The command update allows the flashing of new firmware and audio files.
Syntax:
  update type "http://Server-address/filename.hex" <optinal: dal nr>
type can be:
firmware ... for firmware update
audio ..... for new audio files smaller then 10000 bytes
audio+ ..... for audio files greater than 10000 bytes - be sure to have all
               necessary files listed in the .idx file on your web server. Use
               only the .hex file in the update command.
sisy ..... only for VCS - update of the interface card inside the VCS.
dcs ..... for callstations. Optional parameter for choosing the DAL. If no
               optional parameter is used, all DALs will be updated.
dal nr (only used for update dcs) can be:
ds 1... DAL 1
ds 2... DAL 2
ds 3... DAL 3
ds 4... DAL 4
Example:
update audio    "http://192.168.1.111/audio.hex"
update audio+  "http://192.168.1.111/audio.hex"
update firmware "http://192.168.1.111/dom_v2.1_release.hex"
update sisy    "http://192.168.1.111/vcs.bnm"
update dcs     "http://192.168.1.111/dcs.ldr" ds 1
Cancel [x] Connected [x] Autoscroll

```

- Log on with **root**.
- Switch to configuration mode with **opmode config**.
- Use command **update dcs "http://192.168.1.111/dcs.ldr"** to load the new firmware. **192.168.1.111** is an example of the IP address for the local PC from which the `".ldr"` file is being loaded. **dcs.ldr** is an example of the name of the firmware file.
- The update process then starts. A prompt appears for each DAL port to query whether an update should be carried out. The query can be answered with **yes** or **no**. If only one DCS at a specific DAL port should be flashed, **ds 1** to **ds 4** can be specified as a third parameter of the update command if desired. For a DCS at DAL port 3, for example, the command would read:
update dcs "http://192.168.1.111/dcs.ldr" ds 3

```

pt -- 192.168.1.228
File Help
root[0]@228(192.168.1.228#228) [ 2+] >update dcs "http://192.168.1.111/dcs.ldr" ds 3

Important information:
*) During the update process do not remove network connection!
*) Before you start the update procedure ensure the DDM is not
   heavy loaded with network load.
*) The update procedure consists of three phases.
   1) loading the update file from a webserver to the internal memory
   2) verifying the loaded update file
   3) flashing the new update file

-----
STEP 1 --> Loading the update file from webserver to the internal memory

Connecting to server '192.168.1.111' at port 80, ... established
HTTP request file '/dcs.ldr'

Allocating 1000000 bytes space ... at [0482c2cc] done.
Allocating 10000000 bytes temporary program buffer ... at [0492053c] done.

Loading update file
67178 bytes read.

Process HTTP response:
Server returned 229 bytes:
HTTP/1.0 200 Ok
Server: aidex/1.1 (Win32)
Accept-Ranges: bytes
Date: Fri, 26 Sep 2014 07:41:12 GMT
Last-Modified: Fri, 19 Sep 2014 13:00:00 GMT
Content-Type: application/octet-stream
Content-Length: 66945
Connection: close

STEP 2 --> verifying the loaded update file

Processing the content file '/dcs.ldr'
Flashing on DAL 3 started.
Checking the file ...
File checking successful in 0.1 seconds.

STEP 3 --> flashing the new firmware

!! ATTENTION !!
The flash procedure will take about 1 minute!
Do NOT disable the DDM or DCS until it replies with "flashing successful".
If the DDM or DCS loose power during the flash procedure, the firmware of
the device is left in an unusable damaged state and has to be
sent back to your local distributor for service.

START UPDATE ON DAL 3: yes / no

```

- The operating system update is completed when "flashing successful" appears and you are asked whether to perform an automatic restart.
- After the update, a prompt appears querying whether the DCS at the flashed port should be restarted.



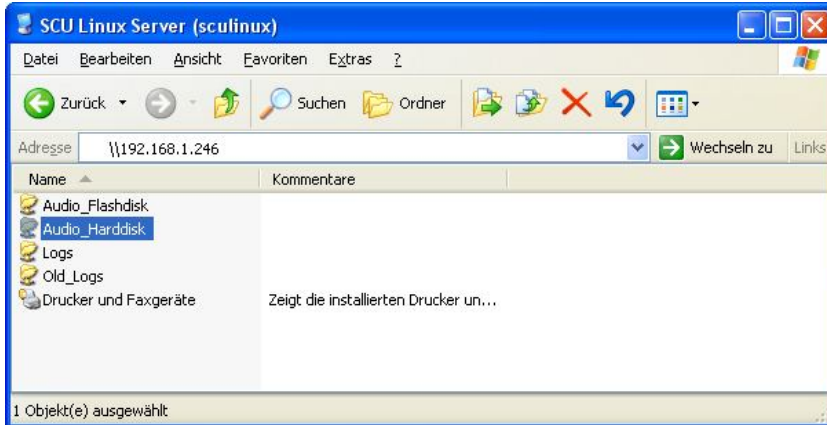
Damage hazard!

- If "Flashing successful" does not appear, the flash process must be repeated without disconnecting the DCS from the control unit.
 - The update will be attempted automatically up to 25 times. If this is not sufficient, restart the process again manually.
 - Otherwise, it is possible that the function is no longer available and the DCS can only be flashed by the manufacturer!
- If yes, the call station is automatically restarted. This process takes approx. 10–120 seconds.
 - The version can then be checked with the "ver" command.

7.4 SCU Operating System Update



An update from versions older than 2.2 to newer versions is not possible because hardware changes have also taken place. For a complete firmware update, a USB stick with the corresponding software is required!

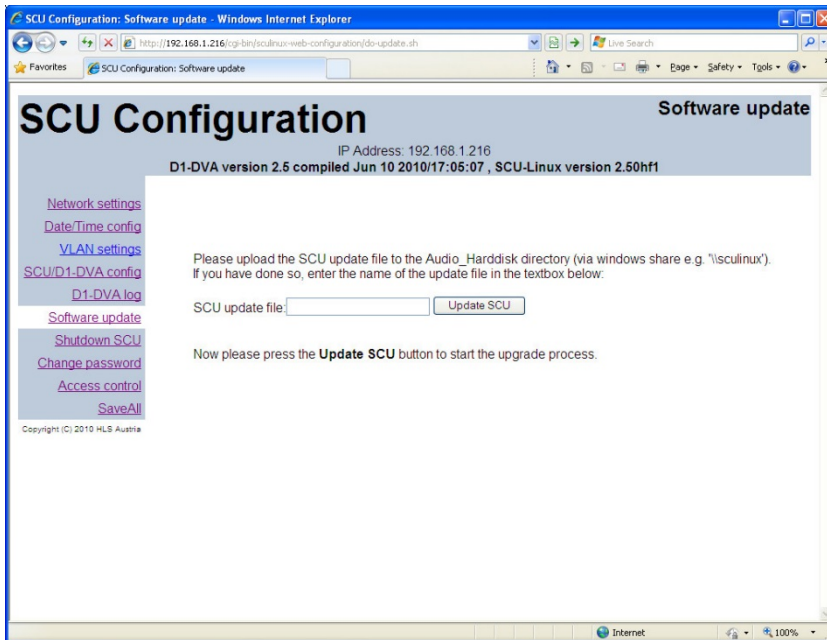


The new operating system file (*.tgz) must be copied to the Audio_Harddisk directory of the SCU:

To do this, enter the IP address of the SCU in Windows Explorer:

"\\SCU_IP_Address"

Then select the Audio_Harddisk directory and copy the file.



On the Web interface, select the item "Software update".

Enter the entire file name (*.tgz) into the input box.

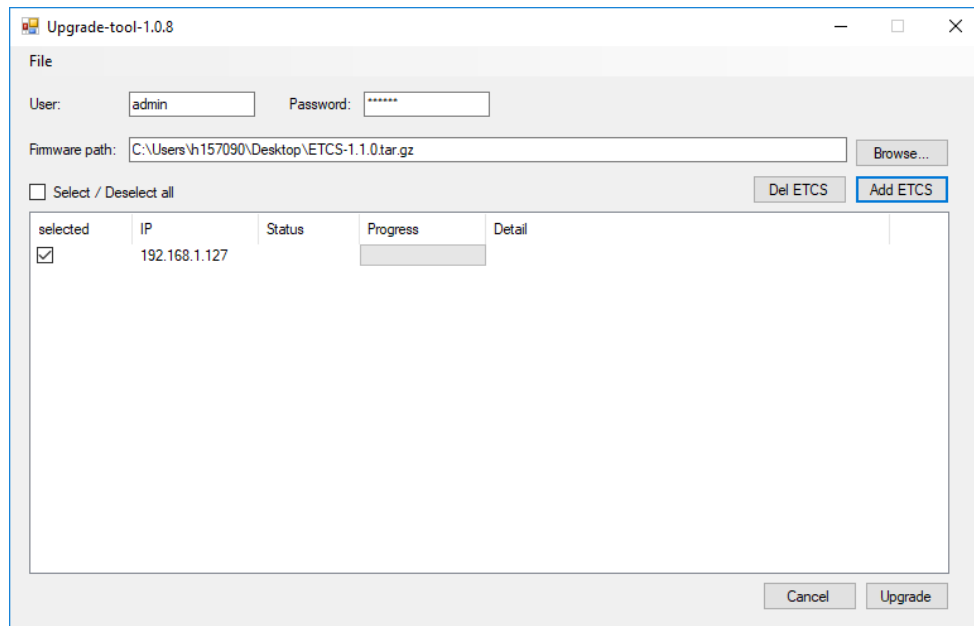
Then click on "Update SCU".

Please wait until the update process has completed.

Then restart the SCU under the item "Shutdown SCU".

7.5 Upgrade ETCS firmware

“Upgrade-tool” is a tool to upgrade ETCS. Double-click Upgrade-tool.exe to run the upgrade tool.



As shown in the above figure, upgrade an ETCS by completing the following steps:

1. Set the ETCS user name and password.
2. Click “Browse...” to select an ETCS firmware package. The file name will appear in the “Firmware path”.
3. Click “Add ETCS” to add an ETCS into the list using its IP address.
4. Select the one to upgrade by checking its box.
5. Click “Upgrade” to begin upgrading. Its upgrade status will appear in the “Details” column.
6. Double-click a single row to see all the upgrade information.



If the current version of the ETCS is 1.0.0, the user name will be “root”. The user name for later versions is “admin”. For more information about the user name and password, see chapter “User management”. The first user is connected to an ETCS by default.

7.6 Export Log

Follow the steps below to export the ETCS logs.

1. Set the ETCS user name and password.
2. Click “Add ETCS” to add an ETCS into the list using its IP address.
3. Select the log to be exported by checking its box.
4. Click “Export log” to export the log, and select a folder to store that log.

7.7 User name and password for upgrading

The correspondence between different versions of the username and password is as follows:

Version	User name	Password
1.0.0	root	The password of first user in the "User management" (Default password: 123456)
1.1.0 ~ 1.1.2	admin	The password of first user in the "User management" (Default password: 123456)
1.2.0 ~ latest	admin	ETCS configuration password in the "User management" (Default password: WELLe mea246800)

8 Command Reference

With the D1 Designer (via serial connection with I2C adapter or via Telnet), it is possible to configure and set-up a VARIODYN® D1 system with the help of specific commands and parameters. The commands only ever refer to the control unit to which the D1 Designer is connected when the commands are entered. When logging onto the system, a username and – if necessary – a password must be entered. The first time, the user “root” must be entered without password. Every logon and logoff is recorded in the message list.

General Commands

Help

Help can be requested with the command **?**. The command list appears.

```
CMD >? [level]
```

The following parameters can be entered as level:

```
std..... Only standard commands
para ..... Only parameterisation commands
conf..... Only configuration commands
```

Output:

Command	Parameter	Function
?		User Help
vol	[Dev Level(dBu)]	Control Volume
csp	CS Priority(0-250)	I/O Callst. Set Priority

The command list contains the command on the left, the parameter(s) in the middle and the function of the command on the right.

Parameters displayed in square brackets are optional. If these parameters are not entered, the command can be used to query “data”.

If entered, they define how the command executes control, parameterisation or configuration actions.

Parentheses in the parameters contain the valid value range, the unit or possible names of the parameter.

Search function

The **apropos** command can be used to search the help for a specific text string. Every help entry that contains the specified text string is displayed.

```
CMD >apropos text
```

Extended help

More detailed information on the individual commands can be requested with the **man** command. This includes a short description, the exact syntax and application examples. Related commands are also listed, if any exist.

```
CMD >man [command]
```


Exit

The **exit** command ends the terminal connection to the control unit.

CMD >exit



The connection is automatically ended if nothing is entered for 30 minutes.

Version

The **ver** command displays the software version, MAC address, serial number and license information for the control unit.

CMD >ver

System name

The system name of the control unit can be queried or entered with the **sysname** command.

CMD >sysname ["system name"]

The system name can be parameterised to any desired value up to 40 characters long. If the system name contains spaces, it must be placed in quotation marks (""). No system name is set at the factory.

Example: sysname "Variodyn System1"

Reset

A warm or cold start of the control unit can be initiated with the **reset** command.

CMD >reset lo [option]

If executed without the option parameter, a warm start is performed without deletion of the configuration. To delete the configuration, an option must be included:

clr.....	Delete the entire configuration.
config.....	Partial deletion of the configuration (system name, ID, user, AVC parameters, impedance measurement values and message list are not deleted). Network switch is not reset.

Monitor function

The **montimeout** command can be used to specify a length of time after which the monitor function should be automatically deactivated after being triggered with the monitor button.

CMD >montimeout [duration]

The duration is given in seconds and can range from 1 to 300 seconds (default 180 seconds).

Status of the redundant call station/replacement amplifier

The status of the redundant call station/replacement amplifier can be viewed with the **repl** command.

CMD >repl

Dev-Chan	Replacement		RepRel
PA 001.01	ACTIV*1	ACTIV*2	ON
PA 002.01	---	---	OFF
DS 001.01	ACTIV		
DS 002.01	---		

ACTIV*1 signifies that the main device has failed and a replacement is required.

ACTIV*2 signifies that the replacement device is active.

RepRel indicates the status of the backup relay on the main device.

LED / contact test

The **lamptest** command can be used to test all LEDs on a control unit and the configured DAL bus devices. On UIM, all contacts are switched.

CMD >lamptest on (default) / off

Operating mode

The **opmode** command can be used to switch the system into configuration or normal operating mode or to display the current mode.

CMD >opmode [Mode] [Delay]

The mode parameter can take the following values:

config..... Activate configuration mode (default)

normal Activate normal operating mode



If one of the DOM in the VARIODYN(R) D1 network during the configuration stage is left in "OPMODE CONFIG" state, no calls will start and the calls will be in "BREAK" state.

Configuration

The configuration mode is automatically activated after a cold start. Configuration of the system takes place in this mode. No calls are possible. The configuration is completed by switching back to normal operation.

Normal operation

Calls and online parameterisation are possible in this mode. Configuration is not possible.

Alarm

The alarm mode is automatically activated when a connection with alarm priority (=20) is present in the system. Changing to configuration mode is not possible.

UPS

The control unit is in energy-saving mode.

Example: Opmode config

As a parameter delay the number of hours must be specified in which an activated configuration mode, starting with the entry of the "opmode" command up until the end of the terminal session, remains in effect before automatically switching back to normal mode. If the value -1 is given for the delay, there is no automatic switchback to normal mode. Entering value 0 or leaving the Delay parameter blank causes an immediate switchback as soon as the terminal session ends.

Error mode

The **errormode** command can be used to specify whether the local control unit should also report an error when another control unit in the network reports an error and whether the error should be automatically reset when it has been corrected. This is indicated by visible (ERRORLED) as well as audible means (warning tone). This allows one control unit to be used as master control unit for error messages.

```
CMD >errormode [type mode]
```

The type parameter can take the following values:

local Only errors on the local control unit

net Also errors of other control units in the network (default)

The mode parameter can take the following values:

manual Manual reset (default)

auto Automatic reset once the error has been corrected

Error warning tone

The **errorsound** command can be used to enable or disable the error warning tone on the control unit or to query the current setting.

```
CMD >errorsound on (default) / off
```

Export configuration

The **vcflst** command exports the current configuration from the control unit. The output can then be copied and saved in a file.

```
CMD >vcflst [1]
```

This outputs all commands and their parameters required for restoration of the current control unit configuration. If the parameter 1 is entered, the calibrated impedance values are also output. This configuration should only be loaded back into the same control unit (after a software update) since manufacturing tolerances result in small differences from one control unit to another and proper monitoring could no longer be guaranteed.

Displaying audio files

The **audiolist** command can be used to display the audio files of the control unit currently being played back.

CMD >audiolist

No.	Title	Length	Date	Time
001:	1KlangGong	00:00:03	20050217	00:22:30
002:	2KlangGong	00:00:03	20050217	00:22:30
003:	3KlangGong	00:00:05	20050217	00:22:30
004:	Alarm.mp2	00:00:25	20110503	00:15:24

The memory slot number (001-016), the title or file name, length of the audio file and creation date and time are displayed.

Time and Date commands

Date

The date can be displayed or set for all control units in the network with the **date** command.

CMD >date [year month day]

Example: date 2007 09 24

Time

The time can be displayed or set for all control units in the network with the **time** command.

CMD >time [hours minutes seconds]

Example: time 13 55 11

Time synchronisation

The **timesync** command can be used to specify how the time synchronisation takes place.

CMD >timesync [mode [interval]]

The following modes can be selected:

off No time synchronisation
 client Receive mode control unit (default)
 tc Receive mode via external GPS module
 master Time data are periodically sent to all control units located in the network. The interval parameter specifies the frequency of the time synchronisation process in minutes (min. 5 - max. 720).
 tcmaster As master but with reception via external GPS module

Example: timesync master 10

Time zone

The time difference from UTC (GMT) can be set with the **timezone** command.

```
CMD >timezone [hours] [minutes]
```

The difference in hours can be set between -12 and +14 (default 0) and the difference in minutes between 1 and 59 (default 0).

Example: `timezone +3 30`
 `timezone -4`

Automatic daylight saving time switching

The **dlsbegin** command can be used to set when daylight saving time starts.

```
CMD >dlsbegin [week day month time]
```

The week must be set:

first..... First week in the month
 second..... Second week in the month
 third Third week in the month
 last2..... Next-to-last week in the month
 last..... Last week in the month

Day: Monday (mo), Tuesday (tu), Wednesday (we), Thursday (th), Friday (fr), Saturday (sa) or Sunday (su)
 Month: 1-12

Time must be entered in hours (1-23).

Example: `dlsbegin last su 3 2`

The **dlsend** command can be used to set when daylight saving time ends.

```
CMD >dlsend [week day month time]
```

The week must be set:

first..... First week in the month
 second..... Second week in the month
 third Third week in the month
 last2..... Next-to-last week in the month
 last..... Last week in the month

Day: Monday (mo), Tuesday (tu), Wednesday (we), Thursday (th), Friday (fr), Saturday (sa) or Sunday (su)
 Month: 1-12

Time must be entered in hours (1-23).

Example: `dlsend last su 10 3`

Energy-Saving Mode Commands

UPS master

The **usvmaster** command can be used to specify which control unit in the network (with a UPS control contact) participates in controlling the energy-saving mode of the local control unit.

```
CMD >usvmaster [system]
```

System can take the following parameters:

lo..... No UPS master (default)
System number Control unit in network is UPS master
..... (local control contacts of a UPS are also processed)

Example: usvmaster 36

UPS mode

The **usvmodus** command can be used to define how the amplifier should behave in energy-saving mode.

```
CMD >usvmode [mode]
```

The following modes can be set for the amplifier in energy-saving mode:

up Amplifiers remain on and are monitored.
updown..... Amplifiers are switched off and then switched on for monitoring roughly every
 90 seconds.
nomeasure Amplifiers are switched off and not monitored.

Example: usvmodus updown

Turn on and follow-up times for power amplifiers

The **sypwrsave** command is used to set the parameters associated with the power-saving mode. These are the turn on time of the power amplifiers and the follow-up time before shutdown.

```
CMD >sypwrsave [turn_on_time follow_up_time]
```

turn_on_time Time in seconds (0 – 30) until the power amplifiers are ready for use after activation in
 power-saving mode (default 5 seconds).
follow_up_time Time in seconds (0 – 3600) until the power amplifiers are deactivated in power-saving
 mode (default 30 seconds).

To ensure continuous operation even in power-saving mode, the follow-up time should be set such that the power amplifiers only shut down after prolonged inactivity in order to prevent frequent switching on and off. This prevents experiencing of the turn on time delay before every call.

Example: sypwrsave 5 10

Network Commands

Network address

The **ifconfig** command is used to view and change IP-related settings of the control unit.

CMD >ifconfig [IP_address subnet_mask gateway name_server]

If no gateway or nameserver is used, the address 0.0.0.0 must be entered for both.

Sample output:

```
Current      ip address: 192.168.1.246 (default)
Current      subnet mask: 255.255.255.0
Current      gateway: 192.168.1.1
Stored       ethernet address: 00:0d:1f:01:00:1a
Stored       ip address: 192.168.01.246
Stored       subnet mask: 255.255.255.00
Stored       gateway: 192.168.01.01
Stored       nameserver ip address: 192.168.01.01
Stored       LAN interface uses DHCP: NO
```

Example: `ifconfig 192.168.0.45 255.255.255.0 192.168.0.1 192.168.0.1`

Network ID

The **route** command can be used to assign a system number to any control unit in connection with its IP address. Other control units in the network are automatically identified and registered as soon as they are also assigned IDs. Entering the command without parameters will list all control units with system numbers.

CMD >route [system_number IP_address]

Example: `route 1 192.168.1.11`
`route 2 192.168.1.12`

System status

The **sysstat** command is used to query the status of all control units on the network.

CMD >sysstat

system	name	found ip	auto/static	ip status	errorstate	downtime[seconds]
32		192.168.1.235	yes	up	ok	
35	FreeDOM	192.168.1.205	yes	up	ok	
199		192.168.1.199	yes	up	ok	
211		192.168.1.211	yes	up	ok	
212		192.168.1.212	yes	up	error	

The results contain the system number and system name, identified IP address, automatic or manual (static) IP assignment, connection status, whether an error exists on the control unit and how long the connection to the control unit has been down.

The systat output in V3 mode has an advanced output (type and advanced status flags).

up	Device detected
UC-up	Device detected but cannot be reached via Multicast
down	Device cannot be detected
error	Device reporting an error
ok	Device detected and reporting no errors

If the status is ok, additional system statuses are displayed:

C ... Device is in opmode config
 A ... Device is in alarm state
 P ... Device is in UPS mode
 B ... A ring loop is being started up on the device

system	typ	name	found ip	auto/static ip	status	errorstate
9	DOM4-24		192.168.1.249	auto	up	ok
30	unknown	SCU	192.168.1.30	auto	UC-up	ok
101	DOM4-24	Romans 4-24	192.168.1.101	auto	up	ok
222	SCU-1		192.168.1.222	auto	up	ok
250	Compr4-8Net		192.168.1.250	auto	up	error

VLAN ID

The **vlancfg** command can be used to view or set the VLAN ID and priority of the control unit.

CMD > vlancfg [ID Priorität [[Alarm-Priorität] [Src-IP Netmask]]]

ID	Can be set between 0 and 4095 (default: 3)
Priority	Can be set between 0 and 7 (default: 6) (or DSCP 0, see below)
Alarm priority	Can be set between 0 and 7 (default: 6) (or DSCP 0, see below)
Src-IP	IP address for VLAN audio packages (default is IP address of control unit)
Netmask	IP netmask for VLAN audio packages (default is IP netmask of control unit)

Audio streams from normal calls are sent with the value of the "Priority" parameter; audio streams from alarm calls are sent with the value of "Alarm priority".

If value -1 is entered as "ID", VLAN is switched off, i.e. the Ethernet audio packages are sent without a VLAN header in compliance with IEEE 802.3. In this case the priority control is carried out via DiffServ/DSCP (RFC 2474). The value ranges of the "Priority" and "Alarm priority" parameters are then 0–63 (default: 0).

VLAN and DSCP cannot be used at the same time. When VLAN is activated DSCP is set to TOS_LOW_DELAY.

ID can be set between 0 and 4095 (default: 3)

Priority can be set between 0 and 7 (default: 6)



All D1 components in the system must have the same settings. Changes to the VLAN parameters should only be made by experienced network administrators.

Control protocol

The **paproto** command and the **rtppconf** command can be used to define the control protocol for communication with other control units and their operational parameters.

CMD >paproto

The activated protocol version and related QOS settings are queried.

CMD >paproto legacymode On/Off

If "Off" or "0" is set as the on/off parameter, the protocol 11 is activated for active communication with the other control units of the system. The control unit correctly responds passively to the telegram from protocol 10.

If "On" or "1" is set the protocol 10 is activated for active communication with the other control units of the system.



This setting is required when SCU are used in the system as these are not currently compatible with protocol 11.

CMD >paproto qos DSCP [ECN]

The IP QOS settings as per RFC 2474 and RFC 3168 are applied for the telegrams of the control protocol:

The value for DSCP can be set between 0 and 63 (default: 0)

The value for ECN can be set between 0 and 7 (default: 0)



These settings do not affect audio or RTP data. Use the **vlancfg** command for audio streams.

CMD <rtppconf [Multicast_base_address_MSB]

This command is used to define the lower limit for the Multicast addresses used. Parameter "Multicast_base_address_MSB" specifies the most significant byte of this Multicast base address and can be set to values from 224 up to and including 239. If 225 is set, for example, the Multicast base address is 225.0.0.0. The default setting for the Multicast base address and its use in the audio stream addresses depend on the activated control protocol:

- Protocol 11:
 - Default Multicast base address
225.0.0.0
 - Audio stream address
<Multicast_base_address>.<SystemNo.-HighByte>.<SystemNo.-LowByte>.<RTP>channel#>
- Protocol 10:
 - Default Multicast base address
224.1.0.0
 - Audio stream address
<Multicast_base_address>.1.<SystemNo.>.<RTP_channel#>



All control units of the system must use the same version of the control protocol and have the same Multicast base address. This is particularly important for communicating with the SCU and/or control unit with firmware V.2.x!

NTP server

The **ntpconf** command can be used to configure the time synchronisation via an NTP server.

```
CMD >ntpconf [server_IP_address] [interval]
```

The IP address of the NTP server and the update interval in minutes must be entered.

Example: ntpconf 192.168.1.200 60

To ensure proper functioning, the corresponding “dvconf” and “timesync” command must also be set.

SNMP client

The **snmpconf** command can specify SNMP clients for receiving status messages.

```
CMD >snmpconf [index status client_IP_address]
```

index..... 1-10 (max. 10 clients possible)

status..... 1 (activated), 0 (deactivated), -1 (delete).

client_IP_address..... IP address of the client (e.g. PC) that should receive the messages.

Example: ntpconf 192.168.1.200 60

SNMP trap master

The **snmptrapmaster** command can be used to specify a control unit that also reports a failure of other control units via SNMP.

```
CMD >snmptrapmaster on (default) /off
```

Example: snmptrapmaster on

Message Commands

Message list

The **mlst** command can be used to display all messages recorded in the system.

CMD >mlst [quantity]

If messages exist, the last 100 are output in chronological order. If a specific quantity is entered, the most recent messages up to that quantity are listed.

Num	Date	Time	System	Message
1	2004/09/06 -	10:00:12	SYS-LO	DS 002 DEFECT
2	2004/09/06 -	10:00:18	SYS-02	DS 001 OK

The results contain the message number (1, 2, ...), the time the message was triggered, the triggering system and the message itself.

Filtered message list

The **mlstf** command can be used to display a filtered list of all messages recorded in the system. It is possible to filter by system and/or date.

CMD >mlstf [system] [from_date [to_date]]

System "lo" for the local control unit, the system number for a control unit in the network
 from_date Starting date for display of the messages (yyyy mm dd)
 to_date Ending date for display of the messages (yyyy mm dd)
 Only in connection with from_date

The parameters can be entered individually or in combination (note order!).

Message groups

The **mgrp** command can be used to add other control units to the local message group.

CMD >mgrp [system]

System can be the system number of another control unit that should be added to the local message group. The message group settings must also always be configured to ensure proper functioning.

Message group setting

The **mnogrperr** command can be used to define how messages and errors from control units outside the local message group should be handled.

CMD >mnogrperr [messages error]

messages Enter messages in the message list (on - default)
 Do not enter messages in the message list (off)
 error Display errors and output via special functions (on – default)
 Do not display or output errors (off)

Audio Signal Processing

Device volume

The **vol** command can be used to set the base volume of the device and to view all volume values.

CMD >vol [device number.channel level]

The devices can be "PA" (power amplifier), "PR" (preamplifier) or "SG" (signal generator). "Number.channel" is the device number and the desired audio channel. A breakdown of which PA and PR uses which audio output or audio input see appendix. The level can range from -80.0 to +80.0 (default is 0.0 = nominal level).

Example: vol pa 1.1 -12
 vol pr 43.1 -6

If volume-controlling time programs are currently running or the automatic volume control has changed the device level, executing the vol command without parameters can provide information on this:

Dev-Chan	VolDev	[VolMin	VolMax	VolAlarm]	VolBase +	Vol AV +	VolTV1	Program +	VolTV2	Program +	VolConnect
PR 001.01	0.0dB	-80.0dB	80.0dB	(0.0dB)	0.0dB	0.0dB	0.0dB	-	0.0dB	-	0.0dB
PR 001.02	0.0dB	-80.0dB	80.0dB	(0.0dB)	0.0dB	0.0dB	0.0dB	-	0.0dB	-	0.0dB
PR 002.01	0.0dB	-80.0dB	80.0dB	(0.0dB)	0.0dB	0.0dB	0.0dB	-	0.0dB	-	0.0dB
PR 002.02	0.0dB	-80.0dB	80.0dB	(0.0dB)	0.0dB	0.0dB	0.0dB	-	0.0dB	-	0.0dB
PR 043.01	0.0dB	-80.0dB	80.0dB	(0.0dB)	0.0dB	0.0dB	0.0dB	-	0.0dB	-	0.0dB
PR 043.02	0.0dB	-80.0dB	80.0dB	(0.0dB)	0.0dB	0.0dB	0.0dB	-	0.0dB	-	0.0dB
PA 001.01	0.0dB	-80.0dB	80.0dB	-3.0dB	0.0dB	0.0dB	0.0dB	-	0.0dB	-	0.0dB
SG 001.01	0.0dB	-70.0dB	6.0dB	(0.0dB)	0.0dB	0.0dB	0.0dB	-	0.0dB	-	0.0dB

VolDev..... Device level. Comprised of:
 VolMin Minimum level that VolDev can reach
 VolMax Maximum level that VolDev can reach
 VolAlarm..... Alarm volume (only active if no brackets are shown)
 VolBase Set volume
 Vol AV Automatic volume control portion
 VolTV1 Program..... 1st time-based volume program
 VolTV1 Program..... 2nd time-based volume program
 VolConnect..... Connection-specific portion

Device volume limiting / alarm volume

The **volminmax** command can be used to assign minimum and maximum limits to the base volume of the devices.

CMD >volminmax [device number.channel min max [AlarmVol]]

The devices can be "PA" (power amplifier), "PR" (preamplifier) or "SG" (signal generator). "Number.channel" is the device number and the desired audio channel. A breakdown of which PA and PR uses which audio output or audio input see appendix.

The limits (min - lower limit / max - upper limit) can range from -80.0 to +80.0 (default -80 / +6). AlarmVol sets the alarm volume that is applied for this device in the event of a call with alarm priority (only for PAs).

Example: volminmax pa 1.1 -40 +6 -3
 volminmax pr 43.1 -35 +30 0

Activating the alarm volume

The **volalarmact** command can be used to activate or deactivate the alarm volume for devices.

CMD >volalarmact [device number.channel on (default) / off]

The device can only be a PA. "Number.channel" is the device number and the desired audio channel. If activated, in event of a call with alarm priority, the configured alarm volume is applied to this device (bypassing of a manual rule).

Example: volalarmact pa 1.1 on
 volalarmact pa 43.1 on

Microphone sensitivity

The **voldcs** command can be used to regulate or view the sensitivity of the microphone in the call station.

CMD >voldcs [device sensitivity]

Device refers to the microphone at the call station (dcs1_mic – dcs4_mic). The sensitivity can range from -80 to 0 dB. Default is -30 dB. If a speaker is located in the vicinity of the microphone, a reduction by at least 40 dB must be configured.

Example: voldcs dcs1_mic -40
 voldcs dcs3_mic -36

Parametric equalizer

The **peq** command can be used to apply a parametric equalizer function to an amplifier channel.

CMD >peq [device number.channel band gain frequency bandwidth]

device number.channel . Amplifier channel (pa 1.1 – 4.1)
band Equalizer band (1 – 8)
gain..... Amplification in dB (-24.0 – 24.0)
frequency..... Centre frequency in Hz (0.0 – 22000.0)
bandwidth..... Bandwidth in Hz (0.0 – 22000.0)

Default for every amplifier channel:

Band	Gain	Mid	Width
1	+0.0dB	63Hz	39Hz
2	+0.0dB	125Hz	78Hz
3	+0.0dB	250Hz	156Hz
4	+0.0dB	500Hz	312Hz
5	+0.0dB	1000Hz	625Hz
6	+0.0dB	2000Hz	1250Hz
7	+0.0dB	4000Hz	2500Hz
8	+0.0dB	8000Hz	5000Hz

Example: peq pa 2.1 4 -12 5000 500
 peq pa 1.1 5 -6

Delay

The **delay** command can be used to configure a delay for an amplifier channel. This function should only be used if the acoustic conditions of the space in question require it (default is no delay).

CMD >delay [device number.channel delay]

device number.channel . Amplifier channel (pa 1.1 – 4.1)
delay..... Delay in seconds (0.000 – 9.900)

Example: delay pa 1.1 0.250

High pass

The **highpass** command can be used to apply a high pass filter to an amplifier channel.

CMD >highpass [device number.channel frequency order]

device number.channel . Amplifier channel (pa 1.1 – 4.1)
frequency..... Limit frequency in Hz (20 default – 20000)
order..... Order of the high pass (0 - off, 2, 4, 6)

Example: highpass pa 3.1 300 2

Low pass

The **lowpass** command can be used to apply a low pass filter to an amplifier channel.

CMD >lowpass [device number.channel frequency order]

device number.channel . Amplifier channel (pa 1.1 – 4.1)
frequency..... Limit frequency in Hz (20 – 20000 default))
order..... Order of the high pass (0 - off, 2, 4, 6)

Example: lowpass pa 2.1 15000 4

Level display

The **levelmeter** command starts a display of the levels on an audio input or output.

CMD >levelmeter device number.channel [measurement_values]

The devices can be “PA” (power amplifier) or “PR” (preamplifier). “Number.channel” is the device number and the desired audio channel. “Measurement_values” specifies the number of measurement values between 10 and 1000 (default 120).

Output:

Example: levelmeter pa 1.1
 levelmeter pr 43.1 500

Target Definition Commands

List targets

The **ddlst** command can be used to view target definitions with their target elements for the call.

CMD >ddlst [target_definition_number]

The following target definitions are automatically set:

No.	Target element
1 – 2/6	Speaker lines 1 – 2/6 on PA channel 1
9 - 10/14	Speaker lines 1 – 2/6 on PA channel 2
17 - 18/22	Speaker lines 1 – 2/6 on PA channel 3
25 – 26/30	Speaker lines 1 – 2/6 on PA channel 4
41	Speaker DCS1 / Aux output 1 UIM1
42	Aux output DCS1 / Aux output 2 UIM1
43	Speaker DCS2 / Aux output 1 UIM2
44	Aux output DCS2 / Aux output 2 UIM2
45	Speaker DCS3 / Aux output 1 UIM3
46	Aux output DCS3 / Aux output 2 UIM3
47	Speaker DCS4 / Aux output 1 UIM4
48	Aux output DCS4 / Aux output 2 UIM4
51 - 98	Virtual line relay
101 - 104	Loudspeaker ring loop 1 - 4



These predefined target definitions can be used as the basis for individual target definitions and therefore cannot be overwritten, deleted or changed.
Virtual targets can be used for switching of contacts!

Add targets

The **ddadd** command can be used to add targets to a target definition.

CMD >ddadd target_definition_number system target_type number

target_definition_number..... Existing or new target definition (1 – 999)

System Local control unit ("lo") or control unit in the network, specified with the system number.

Target_type can be a preselect station or another target definition. For control units in the network, only target definitions can be selected.

ps..... Preselect station

dd Target definition

The respective number must be entered after this.

Example: ddadd 80 lo dd 10
 ddadd 81 lo ps 4

Target name

The **ddname** command can be used to assign a name to a target.

CMD >ddname target_definition_number [Name]

Target_definition_number	Existing or new target definition (1–999)
Name.....	New name of target definition, max. 64 characters.
.....	If the name contains blank spaces, speech marks must be used around the name

Example: ddname 81 Sector12
 ddname 82 "Hall 2 – Sector 5"

Delete target definitions

The **dddel** command can be used to delete a target definition.

CMD >dddel target_definition_number

target_definition_number An existing target definition must be provided here (1 – 999).

Example: dddel 121

Call Commands

Define quantity

The **csconf** command can be used to define the quantity of calls.

CMD >csconf quantity

quantity..... Value between 0 and 999

Example: csconf 9

List calls

The **cslst** command can be used to view the properties of all calls. The properties include number, name, source channel, presignal, target, button mode, loops, priority, connection time; regain connection setting, partial connection setting, logging, preset, I/O mapping, temporary storage and SCU recording mode.

CMD >cslst [call]

Display mode

The **csom** command can be used to select the display mode for outputting call states.

CMD >csom [mode]

Either 1 (default) or 2 must be specified for the desired mode.

Call name

The **csname** command can be used to assign a name to a call. This is displayed in the message list if logging is active.

```
CMD >csname call name
```

The call and the name (max. 30 characters) must be specified.

Volume

The **csvol** command can be used to assign an additional volume change to a call.

```
CMD >csvol Durchschaltung volume_change
```

The call must be specified. Volume_change can range from -20.0 dB to +20.0 dB (default 0.0 dB).

Example: csvol 2 +6.3

Activation mode

The **cskm** command can be used to parameterise the activation mode of the call.

```
CMD >cskm call activation_mode
```

The call and the mode must be specified.

The following options are available for activation_mode:

press..... Active as long as the trigger is active (default).

toggle..... Call started on first triggering, stopped on next triggering.

Example: cskm 3 toggle
 cskm 1 press

Priority

The **csp** command can be used to assign a priority to a call.

```
CMD >csp call priority
```

The call and the priority must be specified. The priority can range from 0 (highest priority) to 250 (lowest priority (default)). The calls are handled differently based on this priority. Priority 0 – 20: A call is started even in UPS mode. System enters into alarm mode. Priority 21 – 40: A call is started even in UPS mode. The system remains in normal mode.

Priority 41 – 250: Calls are started only in normal mode.

If the system is in UPS mode, the calls are not started.

Example: csp 3 220
 csp 1 50

Connection time

The **cstmo** command can be used to assign a connection time to a call.

CMD >cstmo call call_time

The call and the connection time must be specified. Call_time can range from 1 to 65000 seconds or be set to "perm" (default) for a permanent call.

Example: cstmo 3 5
 cstmo 1 perm

Loop

The **cssrcloop** command can be used with signals from the audio memory to specify how often the standard text should be played.

CMD >cssrcloop call loops

The call and the number of desired loops (1 to 250) must be specified.

The following parameters can also be entered:

off No loop (default)

forever Infinite loop

If this call is interrupted by another call with higher priority, only the incompletely played loops will be played after the call is restored. If a presignal is parameterised, this is also repeated.

Example: cssrcloop 2 40
 cssrcloop 5 forever

Regain connection

The **csrcm** command can be used to configure the regain connection property of a call.

CMD >csrcm call on (default) / off

The call as well as the regain connection setting must be specified.

Example: csrcm 3 on
 csrcm 1 off

Alarm reconnection

The **alarmrm** command can be used to configure global reconnection for the control unit after calls with alarm priority.

CMD >alarmrm on (default) / off

If "off" calls with priority >40 are not reconnected if they were interrupted by a call with alarm priority.

Example: alarmrm off

Partial connection

The **cscm** command can be used to configure the partial connection property of a call.

CMD >cscm call on (default) / off

The call as well as the partial connection setting must be specified.

Example: cscm 3 on
 cscm 1 off

Target element

The **csdstn** command can be used to assign a target element to a call.

CMD >csdstn call system target_type number

The call must be specified.

System Local control unit ("lo") or control unit in the network, specified with the system number.

"Target_type" can be a target definition or preselect station. Only target definitions for a control unit in the network.

dd Target definition

ps..... Data from the preselect station

"Number" specifies the desired target definition or preselect station. A breakdown of which target definition uses which output see appendix.

Example: csdstn 2 lo dd 201
 csdstn 1 lo ps 2

Source

The **cssrc** command can be used to assign a signal source to a call.

CMD >cssrc call system source_type number [signal_number]

The call must be specified.

System Local control unit ("lo") or control unit in the network, specified with the system number.

The possible source types are "ai" (audio input) or "cs" (call).

Number specifies the signal source. Information on which audio input (ai) communicates with a corresponding signal source see appendix. For signals from the internal signal generator or text memory (ai 31), the signal number must also be specified (see chapter Internal Audio Signals). For memory slots of the SCU, the channel (number) and title (signal_number) must be specified (see SCU Operating Instructions). For call (cs), all parameters except for target element, activation mode and preset are copied from the specified call (for multiple use of a source).



The source and presignal of a call must always originate from the same control unit / SCU.

Example: cssrc 2 lo ai 41
 cssrc 1 lo ai 31 4

Presignal channel

The **cspre** command can be used to assign a presignal channel to a call.

CMD >cspre call system signal_type number signal_number

The call must be specified.

System Local control unit ("lo") or control unit in the network, specified with the system number.

Signal_type must be set to one of the following:

none Presignal channel deactivated

ai..... Audio input (signal generator)

The number parameter for this is always 31 (signal generator). Signal_number specifies the number of the actual signal (see chapter Internal Audio Signals).



The source and presignal of a call must always originate from the same control unit.

Example: cspre 2 lo ai 31 2

Multiple source

The **csmulsrc** command can be used to make multiple calls simultaneously use the same source. The function can be used for music playback to allow the music source to be connected to or disconnected from specific speaker lines at any time without the need to stop playback on all speaker lines.

CMD >csmulsrc call on (default) / off

The call as well as the multiple source setting must be specified.



Presignals are not processed.

Calls preset

The **cspreset** command can be used to parameterise a call such that it is started immediately after the system boots up.

CMD >cspreset call on (default) / off

The call as well as the preset setting must be specified.

Example: cspreset 1 1

Logging

The **csprn** command can be used to activate or deactivate logging of the start and end time of a call in the message list.

```
CMD >csprn call on (default) / off
```

The call as well as the logging setting must be specified.

Example: csprn 1 on

Temporary storage

The **csts** command can be used to activate or deactivate the automatic temporary storage of a call.

```
CMD >csts call on (default) / off
```

The call as well as the temporary storage setting must be specified.

Example: csts 1 on

Recording mode

If the sound file of an SCU is the target for the call, the **csappend** command defines whether the recorded announcement is attached to the existing sound file or replaces it.

```
CMD >csappend call on/off (default)
```

The call and the mode must be specified. If "on" is set, the recording is attached to the existing sound file, and if "off" is set, the sound file is overwritten.

Example: csappend 3 on

AVC mode

The **csavcmode** command can be used to configure a call to bypass the automatic volume control and be played without a reduction in volume.

```
CMD >csavcmode call mode
```

The call as well as the AVC mode setting must be specified:

normal AVC is applied

max..... The call always has maximum volume

Example: csavcmode 3 max

Start/stop

The **csctrl** command can be used to start or stop a call.

CMD >csctrl on/off (default)

The call and the activation option:

on Start call

off End call

must be specified.

Example: csctrl 2 on
 csctrl 2 off

Call status

The **constat** command can be used to display all currently active call.

CMD >constat

Output:

No..... Sequential number since the control unit was started

Trigger + number..... Call (cs), host (ho), network control unit (sc) or backup call (rp)

State FULLCON, PARTCON, WAITING, BREAK

Presig-Chan Presignal channel (if it exists)

Source-Chan Source channel

Dest-Elem..... Target elements (local or other control unit)

Preselect Station Commands

Configure preselect station

The **psconf** command can be used to create and define a preselect station.

CMD >psconf preselect_station_number io preselection_quantity

Preselect_station_number specifies the desired preselect station. Preselection_quantity defines the number of preselections of the preselect station.



The first preselection of the preselect station is always the preset preselection, which can be used to make a predefined selection, as defined by the **pspr** command. For this reason, the quantity specified must always be one higher than required.

Example: psconf 1 io 5
 psconf 2 io 7

List preselect stations

The **pslst** command can be used to view all preselect stations created with psconf along with their parameters.

CMD >pslst [preselect_station]

Target element

The **psdstn** command can be used to assign a target element to a preselection.

CMD >psdstn preselect_station preselection system target_type number

The preselect station and preselection must be specified.

System Local control unit ("lo") or control unit in the network, specified with the system number.

Target_type can be a target definition or preselect station. Only target definitions for a control unit in the network.

dd Target definition

ps..... Data from another preselect station.

"Number" specifies the desired target definition or another preselect station. Information on which target definition uses which output see appendix.

Example: psdstn 2 3 lo dd 201
 psdstn 1 5 lo ps 2

Preset

The **pspr** command can be used to define the preset activation status of a preselect at the time of activation of the preselect station.

```
CMD >pspr preselect station preselect preset
```

Preselect station and preset must be specified.

Preset is the status that the preselect takes at the time of activation:

On..... Active

Off..... Inactive (default)

Example: pspr 2 3 on
 pspr 1 5 off

Mode of operation

The **pskm** command can be used to parameterise the activation mode of the preselection.

```
CMD >pskm preselect_station preselection activation_mode
```

The preselect station, the preselection and the mode must be specified.

The following options are available for activation_mode:

press..... Selected only as long as the preselection is triggered.

toggle..... Selection started on first triggering, deselected on next triggering (default).

Example: pskm 2 3 press
 pskm 1 5 toggle

Transport Line Commands

Define transport line

The **tlconf** command can be used to configure the number of transport lines. A transport line has an input and an output. The input can be activated by an external device via an input contact on the UIM or by a button on a call station. This input state is then copied to the output of other transport lines.

```
CMD >tlconf quantity
```

The quantity of transport line inputs is entered. The line quantity can be configured from 0 to 250.

Example: tlconf 5

Display transport line

The **tlst** command can be used to display the properties of all transport line inputs in the local system. The properties include one or more target elements to which the status of the transport line input is copied.

```
CMD >tlst [transport_line]
```

Output:

IO transportline: 001 IO IN 0121 IO OUT 0127

Dest-Elem Dest-Elem

LO LO SC 000 IO 001 LO LO SC 000 IO 002

Add target element

The **tladd** command can be used to add a target element to a transport line. Up to 100 target elements can be added. Target elements are always transport line outputs from the same or other transport lines.

CMD >tladd transport_line network system device device_number type number

Transport line Number of a transport line configured with tlconf
 Mains Always lo (local mains)
 System System number of target control unit or target host or lo (local) when target element is on the same control unit.
 Device Type of target device
 sc Control unit (DOM)
 ho Host (PA server)
 DeviceNo Number of target device (always 0 for device type sc)
 Type Element type on target device (always io as reference to "transport line")
 Number Number of target element (number of corresponding transport line on target device), which should take the input status of the transport line specified here as the output status.

Mains, system, device and device number identify the device containing the target element; type and number identify the target element on the target device.

If the transport line itself is assigned as the target element, its input status is transferred to its output status.

Example: tladd 2 lo lo sc 0 io 2
 tladd 2 lo lo sc 0 io 3

Specifying the source element

The **tlsrc** command can be used to assign a (non-local) source element to a transport line. This allows for reliable synchronisation of the transport line status with that of its source. If this information is missing the status transfer functions as before, but synchronisation with the source status after switching on the control unit or when communication fails (loss of telegrams) is not possible.



The **tlsrc** command is supported as of protocol 11 (from control unit firmware V3.0).

If **protocol 10** is used, **it is not possible to synchronize** with the source state after the control unit has been switched on or in the event of faulty communication (loss of telegrams)!

CMD >tlsrc transport_line mains system device device number type number

Transport line Number of a transport line configured with tlconf
 Mains Always lo (local mains)
 System System number of source control unit or source host
 Device Type of source device
 sc Control unit (DOM)
 ho Host (PA server)
 DeviceNo Number of source device (always 0 for device type sc)
 Type Element type on source device (always io as reference to "transport line")
 Number Number of source element (transport line number on source device)
 Mains, system, device and device number identify the device containing the source element; type and number identify the source element on the source device.

Example: On DOM 300 the TL source is defined as
 "tladd 2 lo 200 sc 0 io 1",
 and DOM 200 is informed with
 "tlsrc 1 lo 300 sc 0 io 2"
 that the output status of its TL 1 is controlled by the input status of TL 2 on DOM 300.

Special Function Commands

Display special function messages

The **sfist** command can be used to list all individually configurable text messages.

```
CMD >sfist [SF_number]
```

```
IO Specialfunction[001]: Activ: ERR "Test 1" Inactiv: NOERR "Test 2"
IO Specialfunction[002]: Activ: ERR "" Inactiv: NOERR ""
IO Specialfunction[003]: Activ: ERR "" Inactiv: NOERR ""
IO Specialfunction[004]: Activ: ERR "" Inactiv: NOERR ""
```

Parameterise special function messages

The **sfname** command can be used to parameterise or view the special function inputs 1 to 255.

```
CMD >sfname number error_active "text_active" error_inactive "text_inactive"
```

Number specifies the special function line (3 to 257). The 3rd special function line is referred to here with the number 1.

The error_active and error_inactive parameters take the values "noerr" or "err" to specify whether the control unit should adopt the error status upon activation or deactivation. The corresponding messages to be entered into the message list are defined with text_active and text_inactive. A maximum of 20 characters is permitted. The values must be entered in quotes.

```
Example:      sfname 1 err "Test 1" noerr "Test 2"
              sfname 3 err activated noerr deactivated
```

Life signal

The **lifesignal** command can be used to provide a life signal on special function line 125 (sf125) for output to an output contact (assigned with iomap).

```
CMD >lifesignal [onTime offTime]
```

With onTime and offTime the periodic duration and key behaviour of the generated pulse are configured:

```
onTime ..... Pulse duration (seconds)
offTime ..... Pause between pulses (seconds)
```

```
Example:      lifesignal 1 3
```

Logic elements

Logic elements link up to 32 binary input signals assigned with iomap according to their type and configuration. Inputs 1–30 are data inputs that are linked according to their function type. Inputs 31 and 32 have special functions (Latch and Reset) which control the forwarding of linking results from inputs 1–30 to the output of the logic element. The output status of a logic element is assigned implicitly to eight predefined virtual control contacts and each binary output explicitly assigned via iomap. With iomap these output signals can be further assigned. The number range of the predefined control contacts is calculated from the number of the logic element: $71001 + (\text{logic element number} - 1) \cdot 8$ to $71008 + (\text{logic element number} - 1) \cdot 8$

Defining quantity

The `leconf c` command is used to define the number of configured logic elements.

CMD >leconf quantity

The quantity of available logic elements is entered. Up to 250 logic elements can be configured.

Example: `leconf 10`

Configuring the logic element

The type and parameters of a logic element are configured with the `lecfg` command.

CMD >lecfg number type [LatchMode DownDelay UpDelay ResetMode]

Number and type must always be specified.

Number..... Number of logic element

Type Type of logic element

AND Logical AND-operator of input signals 1 to 30

OR Logical OR-operator of input signals 1 to 30

NONE Output of status of data input (1–30) whose status last changed

LatchMode..... Mode for transferring the results of the linking of data inputs 1–30

NO No latch function, direct status transfer to output (latch input 31 is ignored) (default: NO)

HI Keep high status until next reset (latch input 31 is ignored)

HOLD Status transfer with Low->High transfer to latch input 31 and keep this status as long as input 31 remains at high level.

SAMPLE Status transfer with each Low->High transfer to latch input 31 and keep this status until next Low->High transfer.

DownDelay Delay of High->Low transfer of output signal in ms

UpDelay..... Delay of Low->High transfer of output signal in ms

ResetMode Operating mode of reset input (input 32) for logic element

EDGE Resolution of reset through Low->High transfer at input 32

LEVEL Resolution of reset through Low->High transfer at input 32 and keep reset status as long as input 32 remains at high level. (Default: LEVEL)

EDGE resets have no effect during LatchMode NO. Therefore each reset requires a low level at the output of the logic element.

lename number text..... Assigns a name to a logic element so it is easier to find (e.g. with `lelst`)

Example: `lecfg 2 AND NO 0 0 LEVEL`

I/O Volume Control Commands

Define quantity

The **vcconf** command can be used to define the quantity of I/O volume control functions.

```
CMD >vcconf quantity
```

The quantity of I/O volume control functions is specified. A quantity from 0 to 250 can be configured.

Example: vcconf 6

List functions

The **vcilst** command can be used to display all I/O volume control functions present in the control unit.

```
CMD >vcilst [number]
```

```
VC  Step   IO IN IO OUT
001  +3.0 dB ---  ---
LO  LO  PA 001.01
```

Step size

The **vcstep** command can be used to assign a step size to an I/O volume control function.

```
CMD >vcstep number step_size
```

Number must specify the number of the I/O volume control function. Step_size can range from -12.0 dB to +12.0 dB. A negative value means that the volume is reduced by the specified value upon every activation of the I/O volume control function. A positive value increases the volume accordingly (default 0.0 dB).

Example: vcstep 1 +3
 vcstep 2 -3

Add device

The **vcadddev** command can be used to assign a device to be controlled to an I/O volume control function.

```
CMD >vcadddev number network system device number.channel
```

Number must specify the number of the I/O volume control function. Network and system can currently only be set to local ("lo").

Device can be "pa" (power amplifier), "pr" (preamplifier) or "sg" (signal generator). Number.channel is the device number and the desired audio channel. A breakdown of which PA and PR uses which audio output or audio input see appendix.

Example: vcadddev 1 lo lo pa 1.1
 vcadddev 2 lo lo pa 1.1

Delete device

The **vcsubdev** command can be used to remove a device from a volume control function.

CMD >vcsubdev number network system device number.channel

The number of the volume control function and a device assigned to it must be specified.

Example: vcsbdev 1 lo lo pa 1.1
 vcsbdev 2 lo lo pa 1.1

Device Commands

Install power amplifier

An amplifier can be installed with the **dvconf** command.

CMD >dvconf [network system device number bus address model]

Network and system must currently always be set to local ("lo").

device pa
number Number of the amplifier channel (1 to 4)
bus 105
Address Address of the amplifier channel (1 to 4)
model 12 (power amplifier)

After the installation, the individual speaker lines can be addressed in the system as follows:

PA	Line 1	Line 2	Line 3*	Line 4*	Line 5*	Line 6*
	dd	dd	dd	dd	dd	dd
1	1	2	3	4	5	6
2	9	10	11	12	13	14
3	17	18	19	20	21	22
4	25	26	27	28	29	30

* Only present on control module (4-24)

Example: dvconf lo lo pa 1 105 1 12
 dvconf lo lo pa 2 105 2 12

Configure backup

The **dvrp** command can be used to assign a replacement amplifier to a power amplifier or to view the assignment.

CMD >dvrp [amplifier number.channel network replacement_system replacement_device number]

amplifier number.channel Specifies the power amplifier (pa) and its number
network Always local ("lo")
replacement_system Local ("lo") or a control unit in the network
replacement_device number Specifies the audio output ("ao"/"dd") and its number

Example: dvrp pa 1.1 lo lo ao 25
 dvrp pa 2.1 lo 2 ao 26
 dvrp pa 3.1 lo lo ao 30

Installing signal generators

The number of simultaneously available signal generators on the control unit is defined with the **sgconf** command.

CMD >sgconf quantity

The number of signal generators can be specified from 1–4.

Example: sgconf 3

Install DCS / UIM

The **dvconf** command can be used to install a call station or a UIM. No differentiation between DCS and UIM is made here in the device designation (ds).

CMD >dvconf [network system device number bus address model]

Network and system must currently always be set to local ("lo").

device ds (DAL)
 number Number of the DAL connection (1 – 4)
 bus Always 0
 address Always 0
 model:
 1 Automatic detection
 2 DCS 12
 3 DCS 15 / DCS 2
 4 UIM

Example: dvconf lo lo ds 1 0 0 3
 dvconf lo lo ds 2 0 0 4

During installation of a DCS or UIM, the settings are defined:

DAL	Input1 / microphone	Input2	Output1 / speaker	Output2	Buttons / contacts
	ai	ai	dd	dd	I/O line
1	41	42	41	42	1 - 120
2	43	44	43	44	121 - 240
3	45	46	45	46	241 - 360
4	47	48	47	48	361 - 480



The button on a DCS 2 is addressed like button 8 of a DCS 15 (I/O line 8 to DAL1, 128 to DAL2, 248 to DAL3 and 368 to DAL4).

DCS key lock

The **dcscopylock** command can be used to lock up to 9 keys of a DCS15 or DCSF12 to prevent accidental use (e.g. for alarm triggering).

CMD >dcscopylock [DAL_bus on (default) / off number_of_keys]

DAL_bus specifies the number (1-4) of the DAL bus to which the call station is connected.

The lock can be activated or deactivated with on/off.

Number_of_keys defines the number of keys that should be locked. It always starts with the key on the upper left. A maximum of 9 keys can be locked.

In operation, the keys can be enabled via the key combination of key 11-10-12. The enabling lasts only as long as the keys 11-10-12 remain pressed.

Example: dcsscopylock 1 on 3
 dcsscopylock 3 on 6



Keys 10, 11 and 12 should no longer be used for other functions.
The key lock is only possible in association with call station firmware 2.2 or higher.

Installing loudspeaker loop (Loop)

A loop (lp) can be installed with the **dvconf** command. A maximum of 4 loops are possible per control unit.

CMD >dvconf [network system device number bus address model Rsv Rsv LIM [P-LR S-LR]]

The network and system must currently always be set to local ("lo").

Device	lp (loop)
Number.....	Number of the loop (1 – 4)
Bus	Always 105
Address	Set same as number (1-4)
Model and Rsv.....	Always 0
LIM	Quantity of isolators (LIM – Loop Isolator Module)
P-LR	Primary line relay (optional: e.g., lr 1.3; default: lr x.1)
S-LR	Secondary line relay (optional: e.g., lr 1.4; default: lr x.2)

Example: dvconf lo lo lp 1 105 1 0 0 0 10
 dvconf lo lo lp 2 105 2 0 0 0 5 lr 2.3 lr 2.4

During the installation of a loop, dd 101-104 are automatically created for the respective loop 1-4.

Configuring a speaker loop

A loop can be configured, reset, started up or shut down with the **aloopecfg** command.

CMD >aloopecfg [device number function [Parameter]]

Device lp (loop)

Number..... Number of the loop (1 – 4)

Function can be the following:

start	Start up ring loop
stop	Stop ring loop
restart	Restart ring loop
mode	Set installation mode
reset	Reset ring loop
lim	Switch LIM to reset status
imp	Change calibration process
supply	Set supply voltage for ring loop
init	Set Init-Boot voltage
fast	Set Fastboot parameters
pulse	Configure relay close pulse
commu	Configure communication pulse
ups	Set parameters for UPS mode
tryclose	Attempt to close the isolator relay (e.g. after short-circuit is detected)
imptol	Set impedance tolerance for simple mode

If parameter "1" is entered for "start" the discharge cycle is skipped.

The parameter for "mode" can be the following:

simple	Simple boot mode
full	Full mode (with location of fault to ground/impedance fault on ring loop)

The parameter for "reset" can be the following:

imp	Only delete calibrated impedance values
id	Only delete assigned isolator IDs
fastboot	Reset the voltage level of the quick boot function
all	Reset/clear all values of a loop

The parameter for "lim" is the number of the LIM.

The parameter for "imp" can be the following:

off	No individual measurement of the isolators
on	Only impedance individual measurement of the isolators
aux	Only capacity individual measurement of the isolators
all	Complete individual measurement of the isolators (default)

The parameter for "supply" has the format: <voltage (mV) frequency (Hz)>

The parameter for "init" has the format: <voltage (mV)>

The parameter for "fast" has the format: <voltage (mV) startup duration/LIM (ms)>

The parameter for "pulse" has the format: <low level (mV) high level (mV) pulse duration (ms)>

The parameter for "commu" has the format: <low level (mV) high level (mV) pulse duration (ms)>

The parameter for "ups" has the format: <max. failure time (ms) boost time (ms)>

The parameter for "imptol" is the max. permissible difference in % (10–150) between the first and second measured impedance value when booting in simple mode.



The "imp" function should only be changed after consultation with technical support.

Querying a loop

The **alooopshow** command is used to query the calibrated status of a ring loop. This allows for errors which occur when the loop is set up to be diagnosed (wiring errors, fault to ground, segment outputs, discrepancies between installed and configured LIMs, etc.)

CMD >alooopshow device number [ring loop end]

Device lp (loop)
 Number..... Number of the loop (1–4)
 Ring loop end Feed-in point for audio signal
 1 Primary side of the loop
 2 Secondary side of the loop
 3 Both sides of the loop



The command only functions in full installation mode (not in simple mode).

Example: alooopshow lp 3

Install additional devices

The **dvconf** command can be used to install additional devices, such as TCM or CIM.

CMD >dvconf [network system device number bus address model]

Network and system must currently always be set to local ("lo").

Device can be one of the following:

tc..... TCM - time control module

io..... CIM - contact interface module

The number parameter can be set to 1 or 2 (only on CIM), bus is always 0, except for CIM No. 2, in which case "Bus" is 15. "Address" is always 0, "Model" is 1 (for TCM) or 12 (for CIM).



The simultaneous operation of a TCM and a CIM or more than 2 CIM on a single control unit is not permitted! For a TCM, the time zone must also be adjusted accordingly! (See "timezone" command).

Example: dvconf lo lo tc 1 0 0 1
 dvconf lo lo io 1 0 0 12

For the installation of one or two CIM, the following I/O lines are defined:

CIM	Contacts 1-8
1	701 - 708
2	711 – 718

Device status

The **dvstat** can be used to query the status of all components of a control unit.

CMD >dvstat

Component	Channel	Status
PR	001.01	OK
SG	002.01	DEFECT

The following components can be displayed under "Component":

SG Signal generator
 PR Preamplifier
 PA Power amplifier
 LR Line relay component
 AV AVC channel
 DS Call station / UIM
 TC Time control module
 IO Contact interface module
 EDP / ID3000 FAS connection (Esser Data protocol / Notifier ID3000)

The following states can be displayed under "Status"

OK Component OK
 DEFECT Component cannot be controlled
 22kHz PEG Amplifier damping too high
 NOT CONNEC Line not connected
 IMPED HIGH/LOW Impedance too high/low
 SHORT CIRC Short-circuit on line
 SETPOINT ? Component has no set point for monitoring

I/O mapping command

The **iomap** can be used to create or display all button, LED and control contact assignments.

CMD >iomap [line in/out network system type number [inv]]

The following lines are defined in the system:

I/O line	Description
1 – 120	Possible buttons of the DCS (incl. all DKM18) or contacts (1 – 48) of the UIM on DAL 1
121 – 240	Possible buttons of the DCS (incl. all DKM18) or contacts (1 – 48) of the UIM on DAL 2
241 – 360	Possible buttons of the DCS (incl. all DKM18) or contacts (1 – 48) of the UIM on DAL 3
361 – 480	Possible buttons of the DCS (incl. all DKM18) or contacts (1 – 48) of the UIM on DAL 4
501 - 508	Control contacts (1 – 8) of the control unit
521 - 700	Virtual contacts of the control unit
701 - 708	Contacts of the CIM1
711 - 718	Contacts of the CIM2
801 – 824	Level-dependent activation of functions (see the corresponding chapter)
1001- 65054	EDP interface (ESSER FAS)
66001 - 67536	Notifier ID3000 interface
70001-70250	Virt. contact of management system (FlexES Guard), switched via protocol
71001-79000	250 x 32 inputs/outputs of the logic elements



The button on a DCS 2 is addressed like button 8 of a DCS 15 (line 8 to DAL1, 128 to DAL2, 248 to DAL3 and 368 to DAL 4).

The in/out parameter defines whether the input or output function should be defined. Input functions can represent various output functions:

I/O speak button:

out1 Output in one-line mode
 out2 Output 1 in two-line mode
 out3 Output 2 in two-line mode

Only out1 is possible for a preselect station, transport line, volume control or special function line. Network and system must currently always be set to local ("lo").

The following functions can be specified as type:

cs Call
 ps Preselect station
 tl Transport line
 sf Special function line
 vc I/O volume control
 le Logic elements
 pg Time program
 ts Temporary storage

For cs, tl, sf, vc and pg, the number parameter is always the number of the function. For the value ps, it is the preselect station number. Preselection number (e.g. ps 1.2). Configuration of value ts (see chapter Temporary Storage Manager). For value le, the number and input of the logic element are separated by a full stop -> logic_element_number.input_number (e.g. le 2.4 or 1.32)

It is optionally possible to specify "inv" as the final parameter to invert the I/O output of this line.

Example:
 iomap 12 in lo lo cs 2
 iomap 12 out1 lo lo cs 2
 iomap 121 in lo lo ps 1.2 inv
 iomap 501 out1 lo lo tl 1 inv

Amplifier Monitoring

Global monitoring

The **atact22glob** command can be used to enable or disable amplifier monitoring for all power amplifier channels of the control unit or to display the current status.

CMD >atact22glob on (default) / off

Tolerance limit

The **attol22** command can be used to adjust the tolerance limit that defines the minimum level drop for detecting an amplifier as defective (default -6 dBu).

CMD >attol22 [device number.channel tolerance]

tolerance..... Specifies the tolerance limit (-45 to 0 dBu)

Example: attol22 pa 2.1 -12

Gain

The **atamplcorr22** command can be used to specify the set gain of the individual power amplifiers.

CMD >atamplcorr22 [device number.channel set_gain]

device..... pa (power amplifier)
 number.channel..... Amplifier channel (e.g. 1.1)
 set_gain..... Amplification (0.0 to 100.0 dBu, default: 42.2 dBu)

Example: atamplcorr22 pa 2.1 44.2
 atamplcorr22 pa 3.1 45.0

Channel monitoring

The **atact22** command can be used to enable or disable amplifier monitoring for individual power amplifier channels of the control unit or to display the current status.

CMD >atact22 device number.channel on (default) / off

device..... pa (power amplifier)
 number.channel..... Output amplifier and channel (e.g. 1.1)

Example: atact22 pa 2.1 off
 atact22 pa 3.1 on

Speaker Line Impedance Monitoring

Activate and deactivate monitoring

The **impactglob** command can be used to enable or disable impedance monitoring in the entire control unit or to display the current status.

```
CMD >impactglob on (default) / off
```

Monitoring for individual speaker lines

The **impact** command can be used to select the impedance monitoring type for specific speaker lines or to display the current status.

```
CMD >impact [device number.channel option [mode type]]
```

Device is always the line relay ("LR"). One of the speaker lines can be selected with number.channel.

The following settings can be configured with the option parameter:

on	On
off	Off (default)
power.....	Only large signal measurement
smallsig	Only small signal measurement

The mode parameter can take the following values:

fast.....	Fast measurement (under 100 seconds, preset)
statistic	Statistical average tracking

The type parameter can take the following values:

imp.....	Only impedance measurement (default)
aux.....	Only EOL (End-of-Line) module
impaux	Impedance measurement and EOL-module combined

Example: impact lr 1.4 off
 impact lr 2.3 smallsig fast aux

Tolerance

The **imptol** command can be used to specify the minimum impedance deviation from the set point that should be reported as an error in the speaker line.

```
CMD >imptol [device number.channel tolerance]
```

Device is always the line relay ("LR"). One of the line relays can be specified with number.channel. Tolerance specifies the tolerance in % (default 25 %).

Example: imptol lr 2.3 12

Impedance threshold

The **implimit** command can be used to set the thresholds at which a deviation should be detected as an error.

```
CMD>implimit [device number.channel short_circuit open]
```

Device is always the line relay ("LR"). You can specify one of the speaker lines with number.channel. A threshold value in ohms must be specified for short_circuit (1 to 200, default 8) and a threshold in ohms for an open line (1000 to 20000, default 20000).

Example: `implimit lr 1.4 15 14000`
 `implimit lr 2.3 4 19000`

Large signal impedance measurement settings

The **impparampower** command can be used to change or display settings related to large signal impedance measurement.

```
CMD> impparampower [lr number.channel pilot freq level1 level2 level3 level4]
```

One of the line relays can be specified with number.channel.

Pilot specifies which pilot level (1-4) should be used for the measurement. If 0 is specified, one of the 4 pilot levels is selected automatically (default).

The frequency (freq) can range from 10 Hz to 22000 Hz.

The parameters level1 to level4 set the 4 possible levels (-80.0 to 42.0 dBu) of the measurement tone.



If these settings are changed, the learning process must then be completed again. An incorrect entry can result in a measurement malfunction. For this reason, the values should only be changed after consultation with the technical support service.

Example: `impparampower lr 1.1 0 25 8.0 16.0 22.0 30.0`

Small signal impedance measurement settings

The **impparamsmall** command can be used to change or display settings related to small signal impedance measurement.

```
CMD> impparamsmall [lr number.channel freq1 level1 freq2 level2 freq3 level3]
```

One of the line relays can be specified with number.channel.

The parameters freq1 to freq3 set the 3 possible frequencies (10 Hz to 22000 Hz) of the pilot tone.

The parameters level1 to level3 set the 3 possible levels (-80.0 to 42.0 dBu) of the pilot tone.



If these settings are changed, the learning process must then be completed again. An incorrect entry can result in a measurement malfunction. For this reason, the values should only be changed after consultation with the technical support service.

Example: `impparamsmall lr 1.1 70 -3.5 250 -39 1000 -53`

Learn impedance

The **impsetpt** command is used to learn the impedance value of the speaker lines.

CMD >impsetpt device number. channel [reset]

The following values can be entered for device:

all..... All activated speaker lines are measured
 lr The number.channel of the relay must be entered
 lp..... The number of the loop (1-4) must be specified



If the base settings are changed using "impparampower" and "impparamsmall", the learning process must be completed again.

Example: impsetpt lr 1.2
 impsetpt lp 1

Display impedance values

The **implst** command can be used to view all important impedance measurement data at once.

CMD >implst [1]

Dev-Chan	Action	Power(nominal)	Tolerance	Setpoint	Value	Setpoint time
LR 001.01	ON	6.0W	25%	1633.9 Ohm	1659.5 Ohm	Thu Feb 14 12:33:22 2012
LR 001.04	SMALLSIG	60.0W	25%	181.6 Ohm	166.1 Ohm	Thu Feb 14 12:33:44 2012
LP 001.01	ON	120.0W	15%	90.0 Ohm	94.0 Ohm	Thu Feb 14 12:34:01 2012

Power (nominal) indicates the currently measured power.

Tolerance indicates the configured tolerance limit.

Setpoint is the normalised, calibrated impedance value.

Value is the normalised, currently measured impedance value.

Setpoint time indicates when the learning process with "impsetpt" took place.

Speaker Line Earth Fault Monitoring

Display data

The **earthlst** command can be used to view all important earth fault measurement data at once.

CMD >earthlst

Earth fault measuring		Wire A	Wire B
Dev-Chan	Action	Ohm	Ohm
LR 001.01	ON	0.0	500.0
LR 001.02	ON	0.0	0.0
LR 001.03	OFF	0.0	0.0
LR 001.03	OFF	0.0	0..0

Activate and deactivate monitoring

The **earthactglob** command can be used to enable or disable earth fault monitoring in the entire control unit or to display the current status

CMD >earthactglob on (default) / off

Activate / deactivate monitoring for individual speaker lines

The **earthact** command can be used to enable or disable earth fault monitoring for specific speaker lines or to view the current status.

CMD >earthact [device number.channel on (default) /off [Mode]]

Device is always the line relay ("LR"). One of the line relays can be selected with number.channel.

The mode parameter can take the following values:

fast..... Fast measurement (under 100 seconds, default)

slow Detailed earth fault measurement also takes place even in the range of an earth fault (> 50 kOhm)

Example: earthact lr 1.4 off

Earth fault threshold

The **earthlimit** command can be used to set the threshold at which a deviation should be detected as an error.

CMD >earthlimit [device number.channel value]

Device is always the line relay ("LR"). One of the speaker lines can be selected with number.channel. A threshold in ohms (10000 - 50000, default 50000) must be specified.

Example: earthlimit lr 1.4 14000
 earthlimit lr 2.3 33000

DAL-Bus Monitoring

The **dcssurvey** command can be used to enable or disable the DAL-bus and microphone monitoring.

```
CMD >dcssurvey [number mic bus]
```

The number parameter specifies the number of the DAL-bus (1-4) to which the call station or UIM is connected. The values "on" or "off" can be specified for the microphone monitoring (mic parameter) and/or the DAL-bus monitoring (bus parameter) to enable or disable these functions. The microphone setting is not taken into account for UIM.

Example: dcssurvey 1 on off
 dcssurvey 3 on on

Contact Monitoring

The **iosurvey** command can be used to enable or disable the contact monitoring of the UIM2.0 or CIM.

```
CMD >iosurvey device number contact on (default) / off
```

Device can be set to "ds" (DAL) or "io" (CIM). The number parameter specifies the number of the DAL-bus (1-4) or the CIM (1-2). The contact parameter specifies the desired contact on the UIM2.0 (41-48) or on the CIM (1-4). The final parameter can be set to the value "on" or "off" to enable/disable the contact monitoring.

Example: iosurvey ds 3 41 off
 iosurvey io 1 3 on

Voltage monitoring

230 V monitoring

The **mainpowersurvey** command can be used to activate or deactivate the 230 V monitoring of the control unit.

```
CMD >mainpowersurvey on (default) / off
```

24 V monitoring

The **auxpowersurvey** command can be used to activate or deactivate the 230 V monitoring of the control unit.

```
CMD >auxpowersurvey on (default) / off
```

Automatic Volume Control

AVC-assignment

The **dvav** command can be used to assign a power amplifier to an automatic volume control input.

```
CMD >dvav pa channel.number av number.channel
```

The number and channel of the amplifier can be combined with any AVC-input.

Example: dvav pa 1.1 av 1.1
 dvav pa 4.1 av 3.1

Activate / deactivate AVC-input

The **dvavp** command can be used to define how the automatic volume control functions.

CMD >dvavp av number.channel act status

The number and channel of the AVC-input must be specified.

The status parameter can take the following values:

- 1 deactivated (default)
- 0 dynamic (constant regulation)
- 2 freeze (regulation only when no call present)
- 3 level-dependent (regulation only during pauses or quiet passages in a call)

Example: dvavp av 1.1 act 1
 dvavp av 4.1 act 0

AVC-rise and fall time

The **dvavp** command can be used to set the rise and fall time of the automatic volume control.

CMD >dvavp av number.channel type time

The number and channel of the AVC-input must be specified.

The type parameter can take the following values:

- rise_int_time Rise time (default 5000)
- fall_int_time Fall time (default 1000)

The time is specified in milliseconds (min. 1 ms to max. 10000 ms).

Example: dvavp av 1.1 rise_int_time 1000
 dvavp av 4.1 fall_int_time 2000

AVC-reaction level

The **dvavp** command can be used to adjust the reaction level (trigger threshold) of the automatic volume control.

CMD >dvavp av number.channel react_level level

The number and channel of the AVC-input must be specified. The level is specified in dBu (min. -80.0 dB / max. 100.0 dB, default 60).

Example: dvavp av 1.1 react_level -50.0
 dvavp av 4.1 react_level -15.0

AVC-sensor deviation

The **dvavp** command can be used to set the sensor deviation of the microphone.

```
CMD >dvavp av number.channel sensor_deviation level
```

The number and channel of the AVC-input must be specified.
The level is specified in dB (default 0.0) (min. -100.0 dB to max. 100.0 dB).

Example: dvavp av 4.1 sensor_deviation 40.0

AVC-level deviation

The **dvavp** command can be used to set the minimum value of the volume level deviation (see “Activate / deactivate AVC-input”).

```
CMD >dvavp av number.channel type level
```

The number and channel of the AVC-input must be specified. Level indicates the difference (in dB) between the played audio signal and the signal received by the AVC-microphone as of which regulation will take place. A large difference (approx. 40-50 dB) means that regulation takes place only during pauses in the audio signal; a smaller difference that regulation takes place even during quiet passages of the audio signal.

Example: dvavp av 1.1 min_diff 10
 dvavp av 4.1 min_diff 40

AVC-scale factor

The **dvavp** command can be used to set the scale factor.

```
CMD >dvavp av number.channel scale_factor factor
```

The number and channel of the AVC input must be specified. The factor can range from 1.0 (1:1.0) to 6.0 (1:6.0).

Example: dvavp av 1.1 scale_factor 1.0
 dvavp av 4.1 scale_factor 3.5

AVC-sound propagation calibration / measurement

The **dvavfb** command can be used to perform the sound propagation calibration or display the current sensor value.

```
CMD >dvavfb av number.channel function
```

The function parameter can take the following values:
learn Calibration learning process
level Display of the value currently measured by the sensor

Time Program Commands

Display time programs

The **prglst** command displays all time programs.

```
CMD >prglst
```

Parameterise time

The **prgtime** command can be used to parameterise a time range and an interval for a time program.

```
CMD >prgtime time_program start_hour start_min end_hour end_min interval
```

The **time_program** can be specified as a number from 1 to 998. The start of a time range within a day is defined with **start_hour** (0 - 23) and **start_min** (0 - 59). [default 12:00]

The end of a time range within a day is defined with **end_hour** (0 - 23) and **end_min** (0 - 59). [default 12:00]

The program is always active during the first minute of the period defined by the interval parameter. In other words, an interval of 1 means always active, an interval of 10 means active 1 minute, then inactive 9 minutes, then active again 1 minute, etc.

The interval can range from 1 to 1440 minutes (corresponding to up to a full day - default 0001).

```
Example:   prgtime 1 12 30 13 15 1
           prgtime 2 8 00 14 00 6
```

Parameterise days of the week

The **prgday** command can be used to parameterise a day range and interval for a time program.

```
CMD >prgday time_program start_day end_day interval
```

The **time_program** can be specified as a number from 1 to 998.

The start of a range of days within a week is defined with **start_day** (mo tu we th fr sa su). (default "mo")

The end of a range of days within a week is defined with **end_day** (mo tu we th fr sa su). (default "su")

The program is always active on the first day of the period defined by the interval parameter. In other words, an interval of 1 means always active, an interval of 2 means active 1 day, then inactive 1 day, then active again 1 day, etc.

The interval can range from 1 to 7 days (default 01).

```
Example:   prgday 1 mo th 1
           prgday 2 su fr 4
```

Parameterise weeks

The **prgweek** command can be used to parameterise a week range and an interval for a time program.

```
CMD >prgweek time_program start_week end_week interval
```

The `time_program` can be specified as a number from 1 to 998.

The start of a week range within a month is defined with `start_week` (1 to 5).
(default 01)

The end of a week range within a month is defined with `end_week` (1 to 5).
(default 05)

The program is always active during the first week of the period defined by the interval parameter. In other words, an interval of 1 means always active, an interval of 2 means active 1 week, then inactive 1 week, then active again 1 week, etc.

The interval can range from 1 to 5 weeks. (default 01)

Example: `prgweek 1 2 5 1`
 `prgweek 2 1 3 2`

Parameterise months

The **prgmonth** command can be used to parameterise a month range and interval for a time program.

```
CMD >prgmonth time_program start_month end_month interval
```

The `time_program` can be specified as a number from 1 to 998.

The start of a month range within a year is defined with `start_month` (1 to 12). (default 01)

The end of a month range within a year is defined with `end_month` (1 to 12). (default 12)

The program is always active in the first month of the period defined by the interval parameter. In other words, an interval of 1 means always active, an interval of 6 means active 1 month, then inactive 5 months, then active again 1 month, etc.

The interval can range from 1 to 12 months. (default 01)

Example: `prgmonth 1 2 7 1`
 `prgmonth 2 5 12 6`

Parameterise year

The **prgyear** command can be used to parameterise a year range and an interval for a time program.

```
CMD >prgyear time_program start_year end_year interval
```

The `time_program` can be specified as a number from 1 to 998.

The start of a year range is defined with `start_year` (1990 to 2089). (default 1990)

The end of a year range is defined with `end_year` (1990 to 2089). (default 2089)

The program is always active in the first year of the period defined by the interval parameter. In other words, an interval of 1 means always active, an interval of 7 means active 1 year, then inactive 6 years, then active again 1 year, etc. The interval can range from 1 to 99 years. (default 01)

Example: `prgyear 1 2004 2008 1`
 `prgyear 2 2005 2010 5`

Delete time program

The **prgdel** command can be used to delete a previously created time program.

CMD >prgdel time_program

The number of the time program must be specified.

Time-based volume control

The **volprg** command can be used to assign up to two time programs to an audio component for time-based volume control.

CMD >volprg component number.channel program level time_program

The following components can be selected to be regulated:

pa Power amplifier
pr Preamplifier
sg Signal generator

The number and channel of the component as well as the program ("tv1" or "tv2") must also be specified.

Level can be set to a value from (in dBu) –20.0 to 20.0 dBu.

A previously defined time program can be specified with the time_program parameter (1 to 998). If 0 is specified here, the time control for this program is deactivated.

Temporary Storage Manager

Configuration

The **tsconf** command can be used to configure or display the temporary storage manager.

CMD >tsconf [system timeout attempts [presignal]]

system System number of the SCU
timeout After this time (in seconds) has elapsed, a temporarily stored recording should no longer be played.
attempts This many attempts should be made to play a temporarily stored recording before giving up.
presignal Presignal to be played before each temporarily stored recording. This must be specified as "ai" followed by the channel and title on the SCU.



If a presignal is already present in the original call, this will also be contained in the temporarily stored recording!

Example: tsconf 11 200 3
 tsconf 5 300 1 ai 31 1

If no parameters are entered, the current configuration is displayed.

Output:

Temporary storage system VAdr[0.05.AS. 0],
storage timeout 300 seconds,
retry count 1,

Control functions

The **iomap** command can be used to assign functions of the temporary storage manager to buttons / LEDs of a DCS or to UIM contacts. Only the individual functions are shown here. For information on using this command, see the chapter I/O Mapping Command.

CMD >iomap line in/out network system ts ai.function

The storage of a call always refers to the respective source (microphone or line-in). By specifying the respective ai (41 -48, for assignment information, see appendix), the in or out function can be defined for this ai.

In functions:

- 1 (TS ACTIVE)..... All waiting and currently playing temporarily stored recordings are deleted or interrupted.
- 2 (AI ACTIVE)..... Waiting and currently playing temporarily stored recordings of the associated ai are deleted or interrupted. A temporarily stored recording that is currently being recorded is not stopped.
- 3 (RECORDING) The temporarily stored recording of the associated ai that is currently being recorded is stopped. Waiting or currently playing temporarily stored recordings are not deleted or interrupted.
- 4 (PLAYING) The temporarily stored recording of the associated ai that is currently being played is interrupted. Recording or waiting temporarily stored recordings are not stopped or deleted.

Out functions:

- 1 (TS ACTIVE)..... Active if a waiting or currently playing temporarily stored recording is present in the system.
- 2 (AI ACTIVE)..... Active if a waiting or currently playing temporarily stored recording of the associated ai is present in the system.
- 3 (RECORDING) Active if a temporarily stored recording of the associated ai is currently being recorded.
- 4 (PLAYING) Active if a temporarily stored recording of the associated ai is currently being played.

Example: iomap 10 in lo lo ts 41.4
 iomap 10 out1 lo lo ts 41.4
 iomap 121 in lo lo ts 41.1

Display control functions

The **tslst** command can be used to display all currently configured control functions.

Output:

AINr	TYP	IO	OUT
041	TS ACTIVE	0127	---
041	RECORDING	0029	0029
042	AI ACTIVE	0125	---
042	PLAYING	---	0126

User Management

List users

The **userlst** command lists all existing users.

CMD >userlst

Output:

	UserName	Usergroup
[administrator] root	
[root] root	
[Roman] user	
[Huber] poweruser	

Add user

The **useradd** command can be used to add new users.

CMD >useradd username group [password]

username Any name (max. 40 characters) The group parameter can take the following values:

root All commands can be entered.

poweruser Only volume and list commands (e.g. implst) are allowed.

user Only the message list and call status can be viewed.

Password can be any character string (max. 40 characters). If username or password contain spaces, they must be entered in "quotation marks".

Example: useradd Peter root a34f
 useradd Huber user

Change password

The **passwd** command can be used by any user to change his password. Users of the group "root" can change / reset the password of any user.

CMD >passwd [user] "password"

The password can be any character string up to a maximum of 40 characters. If the password contain spaces, it must be entered in "quotation marks". If a user is entered, the password for this user can be changed (only available to users of the group "root").

Example: passwd "new password"
 passwd Peter 2745

Delete user

The **userdel** command can be used to delete users.

```
CMD >userdel username
```

username Any existing user

The users “administrator” and “root” cannot be deleted!

Example: userdel Peter

control unit Software Update

The **update** command can be used to load new firmware or an audio file.

```
CMD >update type “http://server_address/filename.hex”
```

Type can be:

firmware..... For firmware update

audio..... For new audio files smaller than 10000 bytes

audio+ For new audio files greater than 10000 bytes

sisy For updating a VARIODYN® D1 Comprio

After the command is entered, the file is read and checked. If the file is complete, the start of the flash process must be confirmed (yes / no). After the new file has been loaded, an automatic restart can be initiated (yes / no).

Example: update audio http://192.168.1.111/audio.hex
 update firmware “http://192.168.1.12/dom_v2.1_release.hex”

Serial fire alarm connection

The **esserconf** command can be used to activate the TWI interface for the serial connection to an ESSER fire alarm system.

```
CMD >esserconf [master/off(default)]
```

The **idconf** command can be used to activate the TWI interface for the serial connection to a Notifier ID3000 fire alarm system.

```
CMD >idconf [master/off(default)]
```

Level-dependent activation of functions (level trigger)

Configuring the level trigger

The **aactlevel** command can be used to define the level (in dB) of an audio input or output as of which the configured function (see I/O mapping) should be activated or deactivated.

CMD >aactlevel [device channel no. actlevel actdelay deactlevel deactdelay]

The devices can be "PA" (power amplifier) or "PR" (preamplifier). Number.channel is the device number and the desired audio channel. A breakdown of which PA and PR uses which audio output or audio input see appendix.

actlevel Activation level (-100.00 - +100.00 dB)

actdelay Activation delay (0 - 20000 ms)

deactlevel Deactivation level (-100.00 - +100.00 dB)

deactdelay Deactivation delay (0 - 20000 ms)

The deactivation level should always be lower than the activation level.

Example: aactlevel pr 41.1 -30 0 -40 2000

Deactivating / activating the level trigger

The level-dependent activation of functions can be deactivated or activated for an audio input or output with the **alevelact** command.

CMD >alevelact [device channel no. on (default) / off]

The devices can be "PA" (power amplifier) or "PR" (preamplifier). Number.channel is the device number and the desired audio channel. A breakdown of which PA and PR uses which audio output or audio input see appendix.

Example: alevelact pr 41.1 on



The assignment of which function should be activated by the level trigger of an audio input or output can be configured via the "iomap" (see I/O Mapping).

A list of the I/O numbers of the respective audio inputs or outputs see appendix.

Viewing leveltrigger activity

The **alevelactstate** command can be used to query the current activation status of the leveltrigger.

CMD >alevelactstate

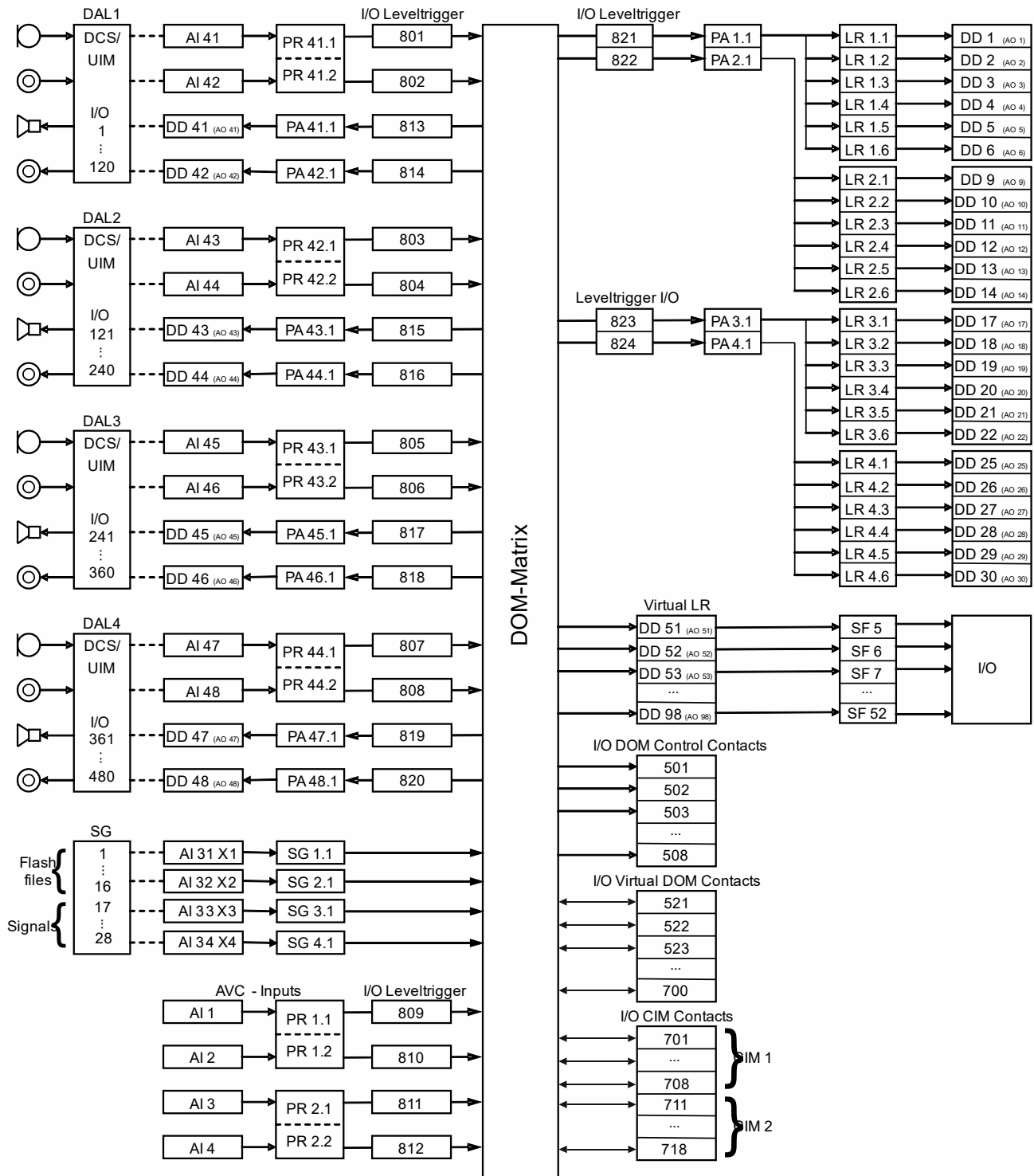
9 Appendix

9.1 Abbreviations

AVC	Automatic Volume Control
FAS	Fire Alarm System
CIM	Contact Interface Module
DAL	Digital Audio Link
DCS	Digital Call Station
DKM	Digital Key Module
DOM	Digital Output Module
EOL	End Of Line (speaker line termination module)
HWS	Hazard Warning System
GPS	Global Positioning System
IP	Internet Protocol
LAN	Local Area Network
LED	Light-Emitting Diode
LM	Line Monitoring
FOC	Fibre-Optic Cable
MSU	Main Switching Unit
NTP	Network Time Protocol (time synchronisation over LAN)
PA system	Public Announcement system
PC	Personal Computer
RC	Replacement Cable
SCU	System Communication Unit
SNMP	Simple Network Management Protocol
TCM	Time Control Module
UIM	Universal Interface Module
UPS	Uninterruptible Power Supply
UTC	Coordinated Universal Time
VCF	VARIODYN® D1 Configuration File
VCM	View Control Module
VIP	Virtual Input Point (Notifier ID 3000)
VOP	Virtual Output Point (Notifier ID 3000)
TS	Temporary Storage

9.2 Control unit System Overview

The following overview describes all existing virtual inputs (AI) and outputs (AO) as well as the available I/O lines of the VARIODYN® D1 and their associations with real inputs and outputs:



Legend:

AI	Audio input	AO	Audio output
DD	Destination definition	PA	Amplifier channel / line output
PR	Preamplifier / line input	LR	Line relay
SF	Special function line	SG	Signal generator
I/O	I/O-Mapping		

9.3 Internal Audio Signals

The following internal audio signals are available in the control unit:

Signal	Signal description	Duration
1-tone gong	Attention signal with single gong	3.0 sec.
2-tone gong	Attention signal with double gong	2.6 sec.
3-tone gong	Attention signal with triple gong	7.5 sec.
Flash text 4 to 16	Individual signals (See chapter "Loading Files into the Internal control unit Audio Memory")	1 hour (total)
Pink noise	--	Unlimited
White noise	--	Unlimited
All-clear signal KTA 3901	Square wave 500 Hz	Unlimited
Evacuation alarm KTA 3901	Square wave 500 Hz 0.5 s with 2 second pause	Unlimited
Fire alarm KTA 3901	Square wave 925 Hz to 1075 Hz, 1 second each	Unlimited
Escape alarm DIN 33404, KTA 3901	Square wave 1.2 kHz to 500 Hz in 1 second	Unlimited
All-clear ZBV	Square wave 400 Hz	Unlimited
Alarm ZBV	Square wave 250 Hz to 400 Hz, rising/falling in 2 second	Unlimited
Slow whoop	Square wave signal from 500 Hz to 1.2 kHz, rising in 3.5 seconds	Unlimited
Sine wave 1 kHz	Sine wave 1 kHz	Unlimited
Wobbled sine wave	250 Hz to 2.5 kHz in 60 ms	Unlimited

9.4 Message List Entries

All possible message list entries (except for individually created messages using the “Text Message” function) are listed below.

Message list entry	Description
System coldboot, permanent data lost, user command (0x05)	Control unit was reset by user via command “reset lo clr”. Configuration was deleted
System Warmstart, user command (0x04)	Control unit was reset by user via command “reset lo”. No configuration loss
System warmboot, crash (0x08)	Control unit was disconnected from the power supply. No configuration loss
logon “xyz”	User xyz logged on
logout “xyz”	User xyz logged off
system x up	Control unit / SCU with system number x available
system x down	Control unit / SCU with system number x not available. Control unit defective or connection lost
Dynamic system x vanished	Control unit / SCU with system number x not available (if automatically entered)
Detected IP addr change node x [xxx.xxx.xxx.xxx->yyy.yyy.yyy.yyy]	Control unit / SCU with system number x has changed the IP address.
DS 00X DEFECT	Failure of the DCS / UIM at DAL X
DS 00X Mikrophon def	Fault in the microphone of the DCS at DAL X
DS 00X CONTROL OK	Failure of the DCS / UIM or fault in the microphone corrected at DAL X
DS 00X CONTACT 0YY SHORT CIRCUIT	Short-circuit at input contact YY on UIM at DAL X
DS 00X CONTACT 0YY OPEN	Line break at input contact YY on UIM at DAL X
DS 00X CONTACT 0YY OK	Fault at input contact YY on UIM at DAL X corrected
DS 00X ➔ BACKUP	Call station operation over the redundant connection
DS 00X ⬅ BACKUP	Call station operation over the main connection
IO 00X I2C DEFECT	Failure of CIM number X
IO 00X I2C CONTROL OK	Failure of CIM number X corrected
IO 00X CONTACT 00Y SHORT CIRCUIT	Short-circuit at input contact Y on CIM number X
IO 00X CONTACT 00Y OPEN	Line break at input contact Y at CIM number X
IO 00X CONTACT 00Y OK	Fault at input contact Y on CIM number X corrected
PA 00X.01 ERROR 22kHz CHECK	Error in 22 kHz monitoring of amplifier channel X (amplifier defective)
PA 00X.01 -> BACKUP	Switch to replacement amplifier activated for amplifier channel X
PA 00X.01 AUDIO OK	Error in 22 kHz monitoring of amplifier channel X corrected
PA 00X.01 <- BACKUP	Switch to replacement amplifier deactivated for amplifier channel X
PA 1/2 Power Supply failure	Failure of one of the power supplies on the first double amplifier
PA 1/2 Power Supply OK	Power supply on the first double amplifier is available again
PA 3/4 Power Supply failure	Failure of one of the power supplies on the second double amplifier
PA 3/4 Power Supply OK	Power supply on the second double amplifier is available again
LR 00X.Y IMP SHORT + values	Short circuit on speaker line (amplifier channel X line Y)
Turn off LR in state short circuit	Speaker line automatically switched off after short circuit
LR 00X.Y IMP HIGH + values	Impedance on speaker line (amplifier channel X line Y) too high
LR 00X.Y IMP LOW + values	Impedance on speaker line (amplifier channel X line Y) too low
LR 00X.Y IMP OK + values	Impedance on speaker line (amplifier channel X line Y) normal again
LR 00X.Y OPEN + values	Speaker line (amplifier channel X line Y) interrupted
LR 00X.Y AUX ERROR + values	EOL module on speaker line (amplifier channel X line Y) not detected
LR 00X.Y EARTHFAULT + values	Earth fault on speaker line (amplifier channel X line Y)
LR 00X.Y EARTH OK + values	Earth fault on speaker line (amplifier channel X line Y) corrected

Message list entry	Description
TC 001 DEFECT	Failure of the time control module
TC 001 Signal lost	Time control module has no connection to time source (satellite / NTP)
TC 001 OK	Fault in the time control module corrected
Battery voltage failure	Battery voltage has fallen below a certain value
Battery voltage OK	Battery voltage has returned to normal
System overheat (>70° Celsius)	The temperature in the control unit exceeds 70 °C
System temperature entered safe range	The temperature in the control unit has returned to normal
AC power brownout detected	A fault was detected in the 230 V power supply
Aux power supply failure	Failure of the 24 V power supply
Aux power supply OK	24 V power supply once again available
Mains power supply failure	Failure of the 230 V power supply
Mains power supply OK	230 V power supply once again available
DSP(x) overload (yyy.y%)	DSP (1 or 2) is overloaded. Capacity utilisation of over 95.0% is reported
DSP(x) load okay	DSP (1 or 2) capacity utilisation back under 95%
Essernet connection offline	Connection to ESSER-interface lost
Essernet connection online	Connection to an ESSER-interface established
Notifier connection offline	Connection to a Notifier ID3000 lost
Notifier connection online	Connection to a Notifier ID3000 established
FLASH CHECKSUM error	Control module has detected an error in the audio memory
Power save operation	Control module has activated the energy-saving mode
Normal operation	Control module has deactivated the energy-saving mode

The possible entries for logging calls are listed below.

Message list entry	Description
connection [XXX,YYY] from callstation [ZZZZ] "Name" SrcIdx[0] connect	Call started
partconnect	Call not reaching all targets
interrupt	Call interrupted
disconnect	Call ended
connection [XXX,YYY] from network connection SC [00SSS] -----"-----	Call at another control unit

[XXX,YYY] Sequential number local, network

[ZZZZ]..... Call number local

"Name" Call name

SrcIdx[0] Source index (if presignal exists, there is also [1] for main source)

[00SSS] System number of a control unit / SCU

10 Open Source Software – Information

10.1 System VARIODYN® D1 → Open Source Software

Open Source software is used with the following products in the VARIODYN® D1 system.

- VARIODYN® D1/VARIODYN® D1 Comprio
- VARIODYN® D1 PAMMI Plus
- VARIODYN® D1 Designer

This product VARIODYN® D1 / VARIODYN® D1 Comprio contains the listed Open Source Software in accordance to the modified (2-clause, 3-clause) BSD Licences.

1) lwIP - A Lightweight TCP/IP stack

Homepage: <http://savannah.nongnu.org/projects/lwip/>

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2) newlib - a C library intended for use on embedded systems

Homepage: <http://www.sourceware.org/newlib/>

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END OF ADDENDUM

3) zlib

version 1.2.8, April 28th, 2013

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Jean-loup Gailly Mark Adler

jloup@gzip.org madler@alumni.caltech.edu

4) boost 1.33.1

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6) nsis (nullsoft scriptable install system)

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Notes

This image shows a full page of blank graph paper. The grid consists of small, uniform squares formed by thin, light gray lines. There are no margins, text, or other markings on the page.



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