Product Manual

ISE SMART CONNECT KNX SONOS

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ISE SMART CONNECT KNX SONOS Product Manual
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Table of contents

1 About this documentation

This documentation will accompany you through all phases of the product life cycle of ISE SMART CONNECT KNX SONOS. You will learn for example how to assemble, install, commission and configure the device.

All descriptions in this documentation relating to configuration in the ETS refer to the variant "ETS Professional" in the 5 version.

Explanations for the concepts of KNX do not form part of this documentation. Specialist knowledge of KNX is a prerequisite.

1.1 Target group

This documentation is aimed at qualified electricians and KNX processors.

ISE SMART CONNECT KNX SONOS may only be assembled and installed by qualified electricians. Specialist knowledge of KNX is a prerequisite.

ISE SMART CONNECT KNX SONOS may be configured by anyone.
We recommend having the project planning done by a system integrator with firm specialist knowledge of KNX and using the ETS.

1.2 Symbols and other typographical conventions

Table 1: Safety notes symbols

Symbol / label	Meaning
	Warning of possible material damage
	General warning
	Warning of electrical voltage

Table 2: Special symbols and typographical conventions

Symbol / label	Meaning
F1	PC button
<<Inscription>>	Text on software interface
	Tip
	Important additional information
	Troubleshooting, error correction and tips on causes
	End device: Sonos loudspeaker – referred to as "Sonos device" in this documentation

2 About ISE SMART CONNECT KNX SONOS

2.1 Proper use

Sonos master devices can be connected via IP using dynamic group creation. Each master device can then be networked with slave devices again. During this process, a separate music program is either assigned to each master device or a master device operates the entire device landscape.

ISE SMART CONNECT KNX SONOS is a device of the KNX system and complies with the KNX guidelines.

Sonos goes KNX

Crystal-clear hi-fi sound and virtually unlimited sound scenarios: The Sonos sound system gives digital music a diverse landscape, comprising different wireless loudspeakers and audio systems. This acoustic marvel has just one catch: Until now, the system was operated inconveniently using a special Sonos software, especially when used with Sonos zones.

The ISE SMART CONNECT KNX SONOS opens up the world of KNX to the family of sound, making it even easier to handle. At last, Sonos can be operated with KNX operating devices, either in party mode or by room. Up to ten Sonos master devices can be connected via IP with dynamic group creation. Each of these master devices, in turn, can be networked with up to five slave devices. During this process, a separate music program is either assigned to each master device or a master device operates the entire device landscape.

Connecting KNX and Sonos opens up new possibilities:

- Door contacts enable dynamic group creation.
- Selecting the "Fireside music" playlist lowers shutters and adjusts the lighting suitably.

These and other application examples can be found in more detail in the following chapters:

- Scenarios, p. 11.
- ► Application scenarios – Comfort solutions in the living environment, p. 15.
- ► Announcements in sales and event rooms, p. 17.

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KNX Secure Ready

ISE SMART CONNECT KNX SONOS is compatible with KNX Secure. The required FDSK (factory default set-up key) can be found on a sticker on the side of the device and is also enclosed with the device. Devices which do not feature this sticker are not "Secure Ready".

2.1.1 Compatibility with Sonos and ETS

All Sonos wireless loudspeakers are hereinafter referred to as a Sonos device.

Compatible with the following Sonos devices:

We support the following Sonos devices in their current versions as a minimum (on the print date of this documentation). However, newer and older versions of Sonos devices and Sonos devices not listed may also function.

- Sonos One
- Sonos Play:1, Sonos Play:3, Sonos Play:5
- Sonos Playbar
- Sonos Connect
- Sonos Connect:Amp
- Sonos SUB and Sonos BRIDGE
  (These devices are never addressed directly via the ISE SMART CONNECT KNX SONOS, but are directly linked with other Sonos devices via the Sonos application instead.)

Configuration: Compatible ETS versions

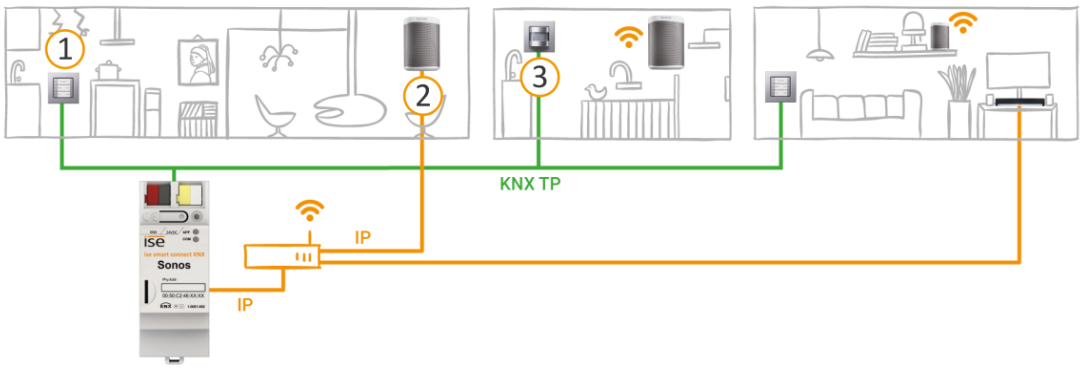
Simple integration into KNX (can be completely configured via ETS):

- ETS4, ETS5 or higher.
- Product database entry: Download the product database free of charge from our website at www.ise.de or from the ETS online catalogue.

2.2 System

ISE SMART CONNECT KNX SONOS is connected to the KNX installation via KNX/TP. The device uses the IP to integrate into the network where the Sonos devices (2) are already located.

The Sonos devices can then be controlled within the KNX installation using buttons (1) or sensors (3) (as per the configuration).



2.3 Functions

Below you will find the most important functions at a glance.

Scope

- Control music reproduced separately in up to ten rooms/zones (ten masters supported).
- One Sonos device (master) can specify the sound for all the devices in the house using the "Party mode" function.
- Trigger dynamic group creation of Sonos devices via KNX: Dynamic group creation for up to ten groups, each with one master and up to five slave devices.
- Number of Sonos devices:
    - Control up to 60 Sonos devices control divided into ten master-slave groups.
    - Control up to 51 Sonos devices as one master-slave group (► Figure 7: A master controls max. 51 Sonos devices, including itself, p. 29).

> As of the date this documentation was printed, Sonos supports a total of up to 32 Sonos products and controllers in a single household. The maximum number of 60 different Sonos devices or 51 Sonos devices in one Sonos group using ten master-slave groups with the same master can therefore only be attained theoretically.

Play

- Control of playlist Start, Pause and Stop for each master-slave group.
- Change of playlist (forward/back and direct selection).
- Navigation between tracks (forward/back).
- Random playback of tracks (shuffle).
- Direct selection of the first track in Sonos Playlists.
- Repeat of a Sonos playlist (any number of times).
- Interrupt playback or unmute for announcements such as bells, calling for lunch or wake-up alarm.
- Option for direct playback of announcements and playlists directly from the device (microSD card).

Volume control

- Complete volume control of masters, slaves and the entire master-slave group.
- Switch the sound on and off (muting).
- Volume pre-selection and unmuting during source selection.
- Increase/lower volume: To absolute or relative value.

Information about the current playback

- Title, artist and album in scrolling text on KNX text objects.

Technology

- Support for analogue and optical inputs on the Sonos Playbar and Sonos Connect/Sonos Connect:Amp.
- Control with the usual KNX operating devices regardless of the Sonos software.
- Changes made using the Sonos software are reported on the KNX/TP bus (playlist selection, volume, muting and so on).
- An integrated data network switch (two RJ45 connections) makes it easier to connect multiple IP devices. This enables multiple ISE SMART CONNECT KNX SONOSs or other IP devices in the arrangement to be connected without the need for other active components.
- Support for accelerated transmission from the ETS to the ISE SMART CONNECT KNX SONOS via a direct IP connection.

2.3.1 Functional enhancements from updates

Functional enhancements for ISE SMART CONNECT KNX SONOS are available via a newer version of the firmware. Simply download the latest firmware and the relevant product manual from our web site www.ise.de.

► Updating the firmware via the device website, p. 59

2.3.2 KNX Secure Ready

ISE SMART CONNECT KNX SONOS is prepared for KNX Secure. The required FDSK (factory default set-up key) can be found on a sticker on the side of the device and is also enclosed with the device. Devices which do not feature this sticker are not "Secure Ready".

For maximum security, we recommend removing the stickers from the device.

You cannot restore the FDSK yourself.

- Keep the FDSK in a safe place.
- Please contact our Support Department if you lose the FDSK despite utmost care.

2.3.3 Scenarios

Below, you will find a few possible scenarios into which you can integrate the ISE SMART CONNECT KNX SONOS. Alternative devices such as logic modules may be required depending on the specific use case.

2.3.3.1 Operating convenience

Controlling music with a push button

Combining Sonos and ISE SMART CONNECT KNX SONOS allows you to control your music system comfortably as you walk past. It's quick, and there no need to look for a remote control. No more annoying flat batteries in your smartphone or tablet PC.

- Playlist selection and volume control are given a permanent position in the KNX push button.
- You can even operate Sonos without glasses – after taking a shower, for example.
- KNX buttons with a display can also show you the track and artist if desired.

Naturally, that's not all you can do with the button. A Sonos device can also be controlled from all KNX-compatible visualisation panels at the same time.

The music goes where you go

Combining Sonos and ISE SMART CONNECT KNX SONOS allows you to have music accompany you as you walk through your home thanks to motion/presence detectors.

After getting up in the morning, the music will follow you to the bathroom and into the living room, where you can begin your day with a cup of coffee.

Requirement: The Sonos hi-fi loudspeakers in each of the rooms are grouped into a single zone. The Sonos hi-fi loudspeakers are muted in rooms once you have left them.

Party at the push of button

With dynamic group creation, the ISE SMART CONNECT KNX SONOS can switch to party mode triggered by a signal from the building bus. Pressing the "Party" button links all the Sonos devices together, and the house becomes a continuous party zone with the same music playing in all the rooms. The volume can still be regulated individually in each room here.

2.3.3.2 Sleeping comfort

Wake up your loved ones with the music of your choice at an increasing volume

The *Wake up* scene preselects your favourite music and gently increases the volume.

Put children to sleep with an audio book which decreases in volume

The *Go to sleep* scene does the opposite: Select an audio book and lower the volume gradually.

You can trigger scenes such as these at the press of a button, using the house visualisation, wirelessly from a smartphone or automatically using a time program.

If you wish, you can even link scenes to the sunrise and sunset!

2.3.3.3 Peace in the household

Ring the dinner bell with Sonos

Who hasn't been in this situation? Loud music is blaring from a child's room. The only way to get the children to the table is by shouting louder and louder throughout the whole house.

Not so with the ISE SMART CONNECT KNX SONOS. Activating the "Dinner bell" button function in the kitchen lowers the media volume in the entire house and brings everyone's attention to family mealtime in a peaceful, stress-free way using an unobtrusive audible signal or recorded announcement heard in every room. Announcement function: see Section ► Announcement mode, p. 67.

2.3.3.4 Home technology

The opposite also holds true: Controlling home technology using the Sonos app

Do you operate your Sonos system using the smartphone app? How would you like it if, when you opened the "Fireside music" playlist, the shutters were lowered, wall lamps were suitably dimmed, heating was regulated to the comfort temperature and the front doorbell was switched off at the same time? The "House party" playlist can provide bright lighting and a changeover to cooling mode.

Select scenes which operate your home technology using the ISE SMART CONNECT KNX SONOS.

2.3.3.5 Security

The Sonos system and ISE SMART CONNECT KNX SONOS make your home more secure: Automated sound output offers a wide variety of possibilities.

1) On holiday (occupied-home simulation):

Music in the house keeps uninvited guests away

Why just switch lights on and off and move shutters to simulate an occupied house? Integrate your world of audio into the occupied-home simulation. What burglar would pick a house where loud music is regularly played?

Scaring off uninvited guests with sound scenarios

Loud dog barking, siren sounds and even voice announcements from the microSD card triggered by outdoor motion detectors and played in different rooms will make criminals change their plans.

Simulating conversations

Put an audio book in MP3 format on the microSD card or network hard disk, and Sonos can simulate a lively dialogue inside your house while you're on holiday. Why not move it around as well? With multiple Sonos devices in the house, the dialogue can "move" around your home.

2) At home alone?

Sonos signals unexpected visits

Motion detection verbal warning: When it's dark, Sonos can notify you in good time of movement outdoors with an audio signal or speech in every room before the doorbell is even pressed.

Sonos will scare them away

Hear suspicious noises outdoors?

Pressing the light switch (e.g. in the bedroom) switches on the lighting inside and on the house. A strong male voice, a recording, calls out from the Sonos outdoor device: "Attention! Leave the property immediately! The police have been notified!" This can even be followed by unobtrusive police sirens.

3) While you're leaving

Prevent fire and water damage

If the exterior doors are equipped with contacts connected to the building bus, the ISE SMART CONNECT KNX SONOS can provide you with valuable information on the way while you're leaving the house: Brief audible messages such as "The cooker is still on!" and "A skylight is still open" can help prevent undesirable things happening.

2.3.3.6 Energy efficiency

The Sonos system and ISE SMART CONNECT KNX SONOS help you to use energy more efficiently without losing any comfort. A few examples:

Don't waste heating energy: "Window opened" announcement

If the outside temperature and the position of the windows are known to the KNX system, occupants can be reminded of energy consumption after a period of time and at regular intervals.

The announcement "The child's room window has been open for a long time" can work wonders. The volume can also be increased from announcement to announcement in especially stubborn cases.

Improve power generator use: Integrate generators

A solar power system mounted on a roof often supplies more power than is needed in a home. In such cases, surplus energy is fed back into the energy network for minimal compensation.

In the evening, it's just the opposite – Power generated by the PV system decreases while consumption for an electric cooker and television increases, meaning power must be acquired at a higher cost.

The ISE SMART CONNECT KNX SONOS can help. If the photovoltaic system signals a current energy surplus via KNX, the following Sonos announcement may be able to make a valuable contribution to environmental protection and lower your costs as well: "Energy surplus – It would now be a good time for you to start the dishwasher, washing machine or drier!"

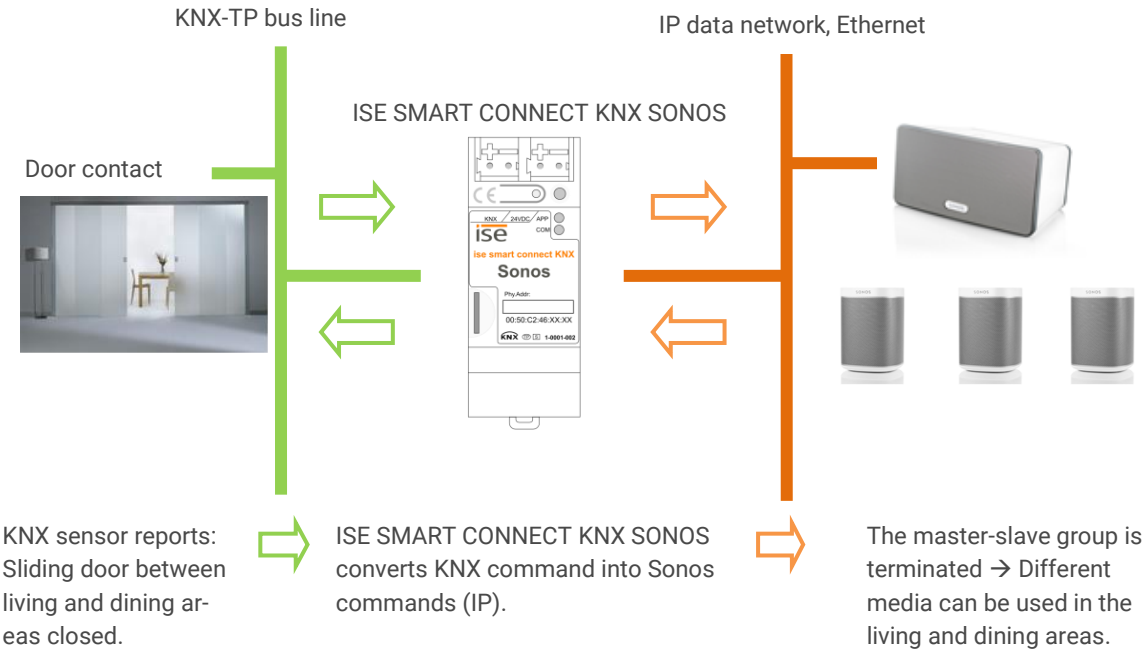
2.3.4 Application scenarios – Comfort solutions in the living environment

2.3.4.1 Door contact enables dynamic group creation

In this application, a door contact causes a configured master-slave group to actuate via KNX. The Sonos devices then become a master or slave (as configured).

If the door is opened, the rooms become an acoustic unit: The ISE SMART CONNECT KNX SONOS creates a group in which a Sonos device in the living area functions as the master for Sonos devices in the dining room, thus determining music playback.

If the door is closed, the ISE SMART CONNECT KNX SONOS terminates the master-slave group. Both rooms once again have their original master and can be operated independently.



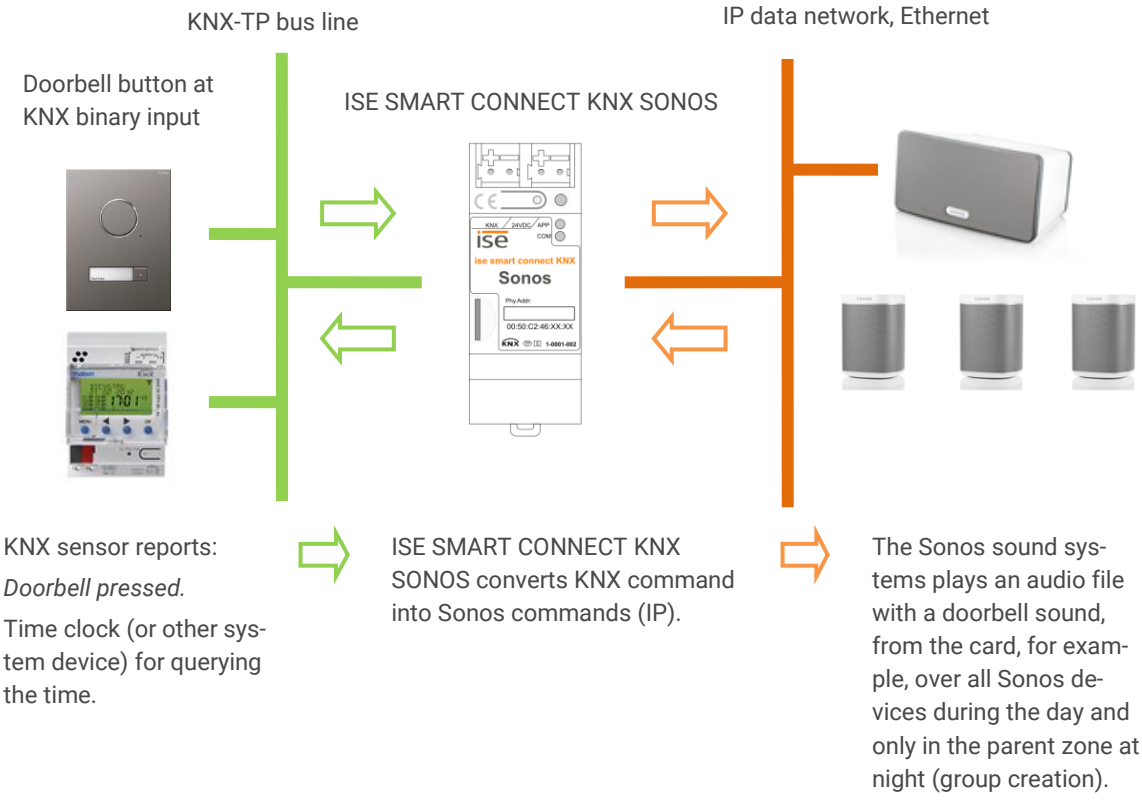
Situation	Result
Is the door open?	The Sonos music in the dining room is the same as the living room (group creation).
Is the door closed?	Different media can be enjoyed (again) in each room. The Sonos devices in the dining room are initially muted after termination. Playback which may have been interrupted by group creation is not continued. This can be implemented using optional Logic Modules, however.

2.3.4.2 Sonos as a smart door gong

This application transforms the Sonos sound system into a smart door gong.

Two versions are possible:

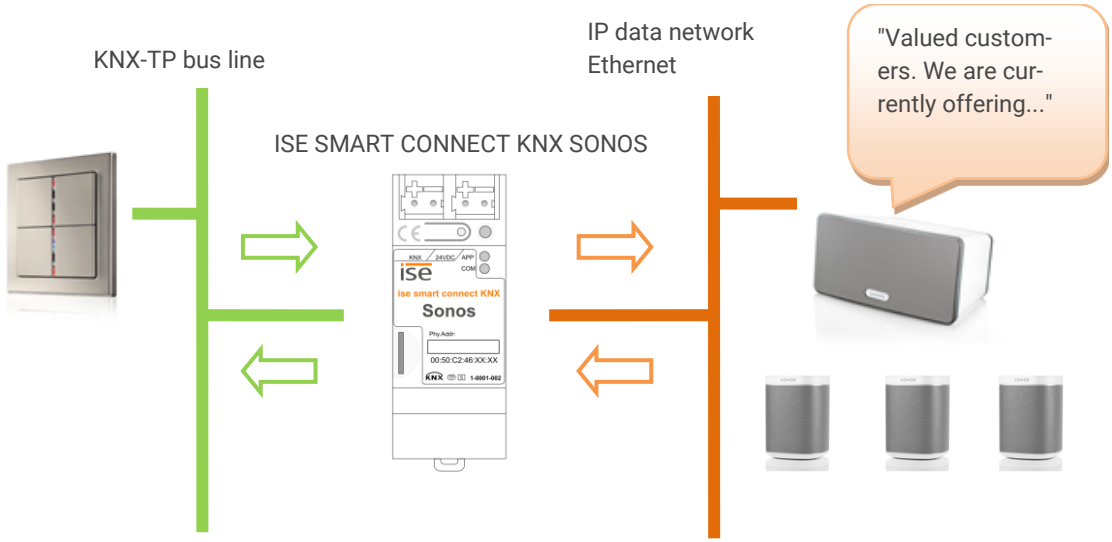
- The volume in one or more (all) groups is reduced, and the standard door gong can then be heard in the house.
- Music playback in one or more (all) groups is stopped, and a door signal is heard in these groups.
    - The signal is a Sonos playlist, which has been configured as an announcement in a playlist entry. The file with the sound may be on the microSD card in your ISE SMART CONNECT KNX SONOS or on another release. Create the Sonos playlist with the official Sonos software.
    - This loading occurs during the day in the entire house. At night, the signal is only heard in the parent zone, so as not to disturb sleeping children.
    - Even if you're listening to loud music, you'll always know there's a guest at the door because the music playback is interrupted for the door gong. The original music playback is resumed once the gong has finished.
- Announcement function: see Section ► Announcement mode, p. 67.



2.3.5 Commercial application scenarios

2.3.5.1 Announcements in sales and event rooms

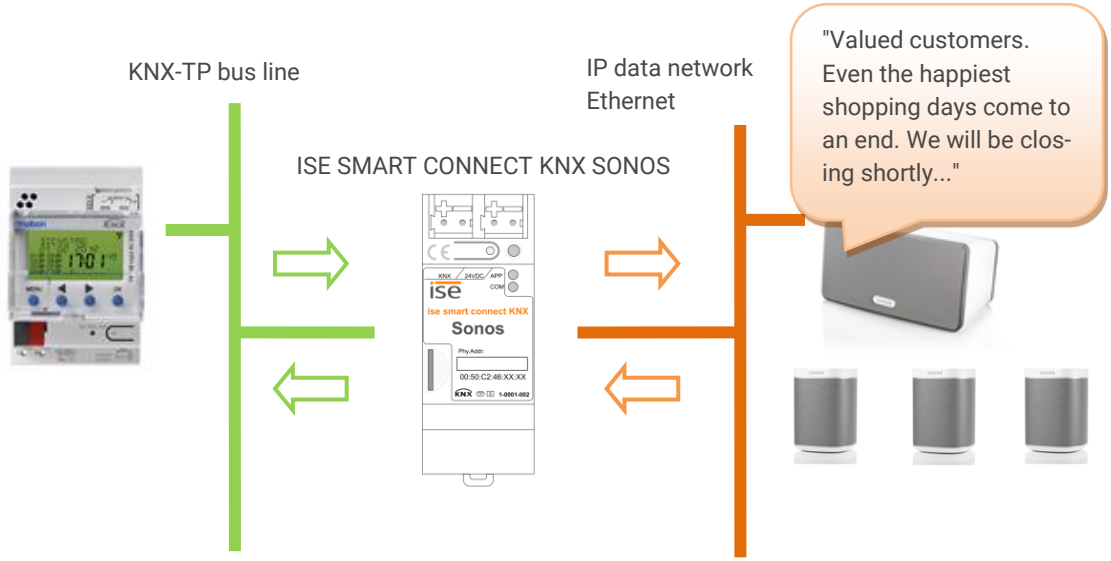
The ISE SMART CONNECT KNX SONOS can present announcements at the push of a button or at set times.



Pressing the button "Announce current offer" triggers a KNX command.

ISE SMART CONNECT KNX SONOS converts KNX command into Sonos commands (IP).

Sonos can play selected audio from a media library on the network, from the microSD card in the device, for example.



Requirements for announcements can also be triggered by time control.

ISE SMART CONNECT KNX SONOS converts KNX command into Sonos commands (IP).

Sonos can play selected audio from a media library on the network, from the microSD card in the device, for example.

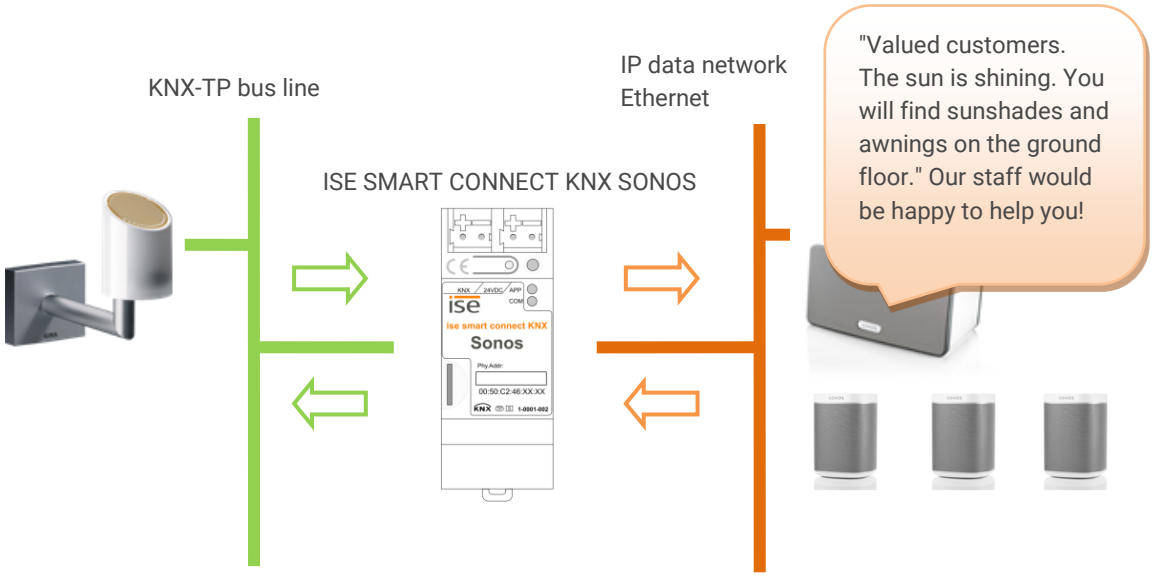
The ISE SMART CONNECT KNX SONOS can provide event-based announcements.

Your announcements will be triggered by events:

Raining? → Umbrella department.

High temperatures outside? → Invitation to the ice cream parlour

...



Requirements for announcements can also be triggered by events. Example: Weather sensor reports *blue skies*.

ISE SMART CONNECT KNX SONOS converts KNX command into Sonos commands (IP).

Sonos can play selected audio from a media library on the network, from the microSD card in the device, for example.

2.4 General safety instructions

WARNING

Danger from incorrect use

Incorrect use can result in damage to the device, fire or other dangers.

- ➢ Only qualified electricians may install and mount electrical devices.
- ➢ Follow the instructions in this product manual.
- ➢ This product manual is part of the product and must remain with the customer.

IMPORTANT

Damage to the device due to incorrect opening

- ➢ Never open the housing.
- ➢ If you suspect that the device is damaged, contact our Support.
- ➢ We provide a warranty in accordance with statutory requirements. Please send the device back to us postage free with a detailed error description.

2.5 Storage and transport

Store the device in its original packing. The original packing provides optimum protection during transport.

Store the device in a temperature range of -25 °C to +70 °C.

3 Basic information

3.1 Room/zone

A room, also known as a zone, is the area where you listen to music with your Sonos devices.

Rooms are merely a notional concept. A room may be an actual room or several rooms in a group:

- An actual room, such as the kitchen, can be a room for Sonos.
- Several actual rooms, such as the hallway and bathroom, can also comprise a room for Sonos.

Sonos uses the terms "room" and "zone" synonymously.

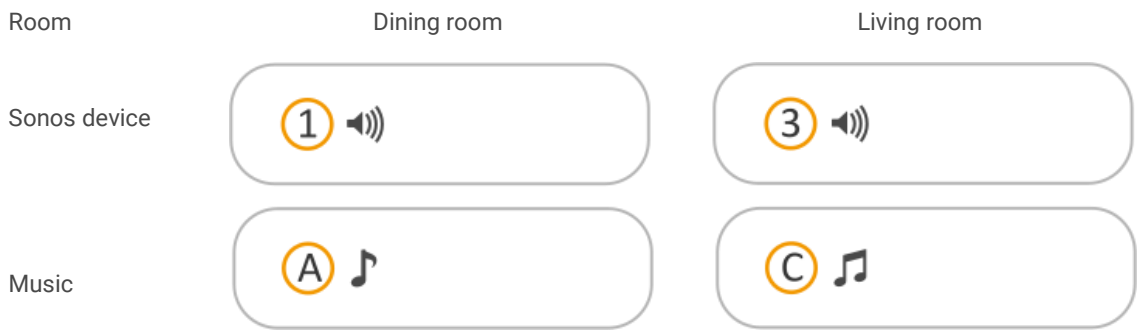


Figure 1: One Sonos device per room

3.2 Play music in rooms synchronously

More than one Sonos device may be installed in a room. Each individual Sonos device could play a different music source. This would generally be very unpleasant for listeners, even if the devices played the same music since playback is usually not synchronised.

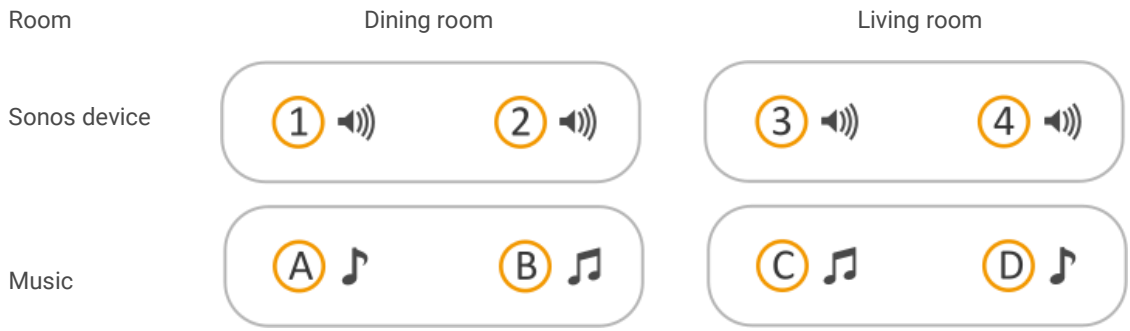


Figure 2: Two Sonos devices per room which play different music

You can connect the Sonos devices in such a way that the music from all Sonos devices within a room is synchronised when it plays.

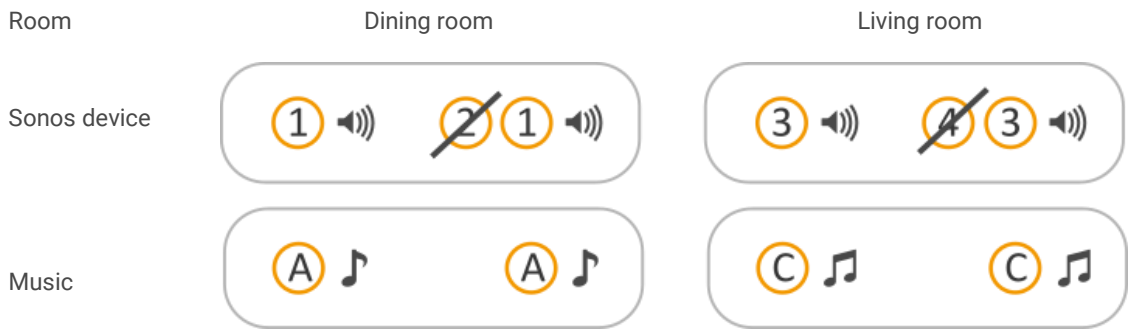


Figure 3: Two Sonos devices per room which play the same music (Sonos devices grouped)

There are several different ways to synchronise playback in the Sonos software and using KNX. These different ways can also be combined with one another.

Master-slave groups (MSG)

- A master-slave group is a logic grouping of up to six Sonos devices in the ISE SMART CONNECT KNX SONOS. A master-slave group comprises a single master and up to five slaves.
- The distinction between Sonos devices in their function as a master or slave is a ISE SMART CONNECT KNX SONOS concept. You will find additional information at ► Master and slaves, p. 25.
- A master-slave group allows Sonos groups to be formed or dissolved using the ISE SMART CONNECT KNX SONOS's communication objects, so that Sonos devices can be controlled together or separately, depending on the specific use case.
- You can define which Sonos devices belong to particular master-slave groups beforehand in the parameter settings in the ETS (see also ► Configuring parameters, p. 70). The Sonos devices are not truly grouped until explicitly required for the use case (during the running time). This is also why we refer to "dynamic group creation".
- You can find a more detailed description of this process at ► Table 5: Overview of a Sonos device's behaviour in the role of a slave in master functions, p. 27.

Sonos groups (designated as "groups" by Sonos)

- You bring two or more Sonos devices together in a group.
- All Sonos devices in a group play the same music in synchronisation. You can change the volume for the whole group or for individual Sonos devices in the group on an individual basis.
- You can form a Sonos group in the Sonos software or using the ISE SMART CONNECT KNX SONOS with the help of master-slave groups.

Stereo pairs

- You permanently connect two Sonos devices as a stereo pair, which is then treated as a single Sonos device.
- The one Sonos device acts as a left-hand audio channel and the other as the right-hand one.
- You can only create a stereo pair in the Sonos software.
- You can use the stereo pair in Sonos groups, especially as a master or slave within master-slave groups. You can configure master-slave groups in the ETS. See ► Configuring parameters, p. 70 for more details.
  You can find a more detailed description of this process at ► Stereo pair: Connect Sonos devices permanently, p. 22.

3.2.1 Stereo pair: Connect Sonos devices permanently

Two Sonos devices are grouped in the Sonos software to ensure that this music is played in synchronisation. What makes a stereo pair special is that the one Sonos device acts as a left-hand audio channel and the other as the right-hand one.

The two devices become a single Sonos device for KNX and in the Sonos software. The two Sonos devices can no longer be controlled separately via KNX. You configure the stereo pair as a master or slave in the ETS, just like any other Sonos device.

The stereo pair cannot be separated using KNX; you need to separate them in the Sonos software, where you also define the stereo pair. You only need to enter the stereo pair's IP address within the ETS. This is the IP address of the Sonos device which you have designated the first device in the stereo pair in the Sonos software. You can learn how to create or separate stereo pairs and much more in the Sonos documentation.

The following diagram shows that only one Sonos device is recognised via KNX:

- Room – dining room: Sonos device 1
- Room – living room: Sonos device 3
- The Sonos devices 2 and 4 are invisible for the Sonos software and KNX.

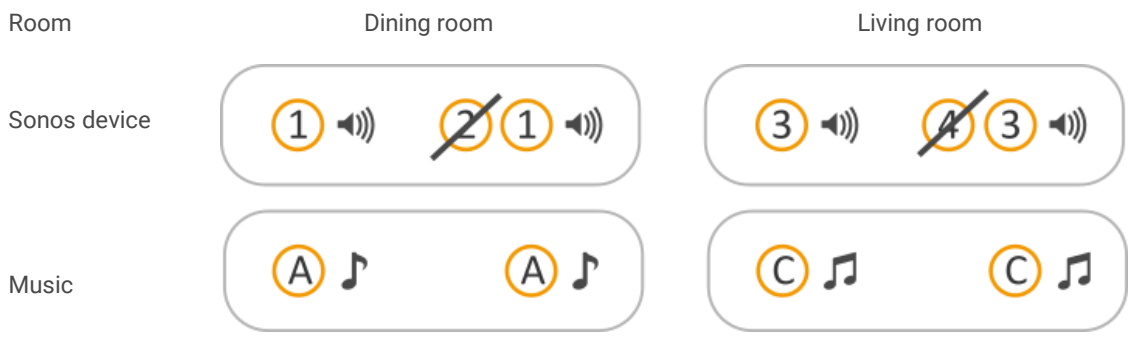


Figure 4: Two Sonos devices per room which play the same music (grouped as a stereo pair)

3.2.2 Case example: Handling stereo pairs in the ETS

Below, you will learn how to configure stereo pairs.

Overview of work steps

1. Create stereo pairs.
2. Enable configuration for master-slave groups.
3. Configure master in the two master-slave groups.
4. Generate KNX group address and link to ISE SMART CONNECT KNX SONOS's corresponding communication objects.
5. Link KNX group addresses with KNX buttons, visualisations and similar.

Initial situation

There are two rooms with two Sonos devices each.

- Dining room: Sonos devices 1 and 2
- Living room: Sonos devices 3 and 4

The Sonos devices could play different music in a room if they are not configured correctly. This would generally be very unpleasant for the listener.

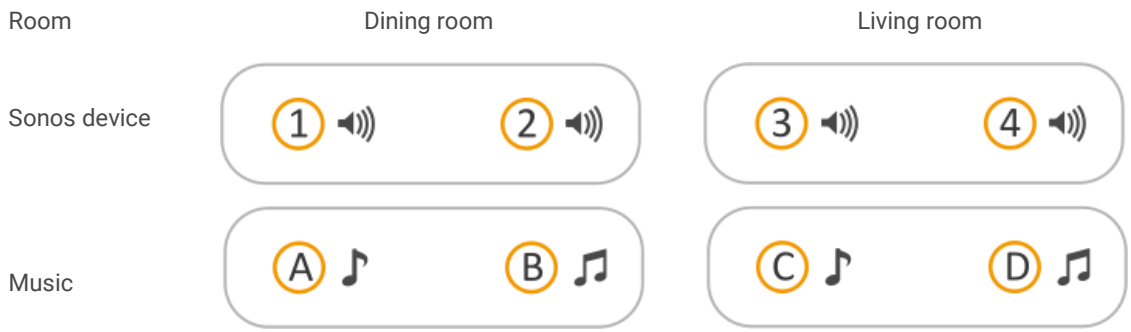


Figure 5: Two Sonos devices per room which play different music

Table 3: IP addresses for "Define stereo pairs" example

Sonos device	Room	IP address
1	Living room left	192.168.0.11
2	Living room right	192.168.0.12
3	Dining room left	192.168.0.15
4	Dining room right	192.168.0.16

Objective

Both Sonos devices in a room are supposed to play the same music. To ensure this is the case, the two Sonos devices in the room concerned need to be controlled together simultaneously. The one Sonos device needs to act as a left-hand audio channel and the other as the right-hand one. It should no longer be possible to control the Sonos devices within a room separately.

As stereo sound is required, we decide on the stereo pair configuration.

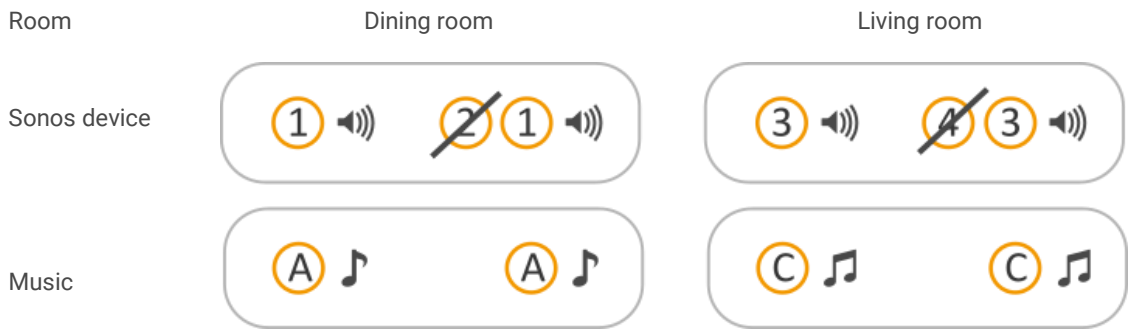


Figure 6: Objective for "Define stereo pairs" example

Work steps	Details
1. Create stereo pairs.	Create stereo pairs in the Sonos software (e.g. on your app). You can learn how to create stereo pairs in the Sonos documentation. The Sonos software and the ISE SMART CONNECT KNX SONOS regard a stereo pair as a single (1) "visible" Sonos device. You only need to enter the stereo pair's IP address within the ETS. This is the IP address of the Sonos device which you have designated the first device in the stereo pair in the Sonos software. ➢ Note down this Sonos device's IP address. If you don't know the stereo pair's IP address, look it up in the Sonos software ► Determine IP addresses of the Sonos devices in the data network, p. 74
2. Enable configuration for master-slave groups.	You wish to control the music separately from one another for the two stereo pairs. To do so, you configure two master-slave groups and establish the IP address of one stereo pair as the master. To do so, select the following settings in the <<General>> tab in the ETS: <<Configuration of the master-slave groups>> — <<2 groups>> <<Support for dynamic group creation (master/slave)>> — <<No>> *Two new <<Group <n>> tabs are shown. A master can be configured in these tabs.* If you wish to also use a stereo pair as a slave in the other master-slave group or want to assign more slaves to the stereo pair, select support for dynamic group creation in the <<General>> tab: <<Support for dynamic group creation (master/slave)>> — <<Yes>>

3. Configure master in the two master-slave groups.	Configure two master-slave groups in the ETS. The IP addresses are known in our example. If you don't know the IP addresses, you need to identify them yourself now; see ► Determine IP addresses of the Sonos devices in the data network, p. 74. The Sonos software and the ISE SMART CONNECT KNX SONOS regard a stereo pair as a single (1) "visible" Sonos device. You only need to enter the stereo pair's IP address within the ETS. This is the IP address of the Sonos device which you have designated the first device in the stereo pair in the Sonos software. Configure the master in the two master-slave groups: Master-slave group 1: Stereo pair 1 as master <<Group 1 master>> 192.168.0.11 Master-slave group 2: Stereo pair 3 as master <<Group 2 master>> 192.168.0.15
4. Generate KNX group address and link to ISE SMART CONNECT KNX SONOS's corresponding communication objects.	Generate the KNX group addresses and link the ISE SMART CONNECT KNX SONOS's corresponding communication objects for the master-slave groups 1 and 2; for example: • <<Play>> • <<Playback state>> • <<Next/previous track>> • <<Relative volume control>>
5. Link KNX group addresses with KNX buttons, visualisations and similar.	• Link <<Play>> and <<Next/previous track>> with push button switching objects, <<Playback state>> with a state object of visualisations. • Link the communication object <<Relative volume control>> with a dimmer switch object.

3.3 Master and slaves

Master and slaves are designations for Sonos devices. You can determine the role for a Sonos device which it should take in a master-slave group in configuration in the ETS. You can define any Sonos device which you can also see in the original Sonos software as the master. This can also be a stereo pair. It is possible to configure a device in different roles in several master-slave groups – as a master in group 1 and as a slave in group 2. However, a Sonos device is unable to take on both roles simultaneously during the running time.

If a Sonos device is configured in both roles in several groups, the master's communication object <<Sonos group slave state>> can be used to detect whether the Sonos device currently has a slave role, and place it in the master role again using the <<Exit slave mode>> communication object.

Masters are the "sound-setting" Sonos devices in a Sonos group. They are used to determine what music is reproduced and also provide information on the music, such as the track, artist and playlist name. All other Sonos devices in a Sonos group play the same music in synchronisation. We could thus say that the master controls itself and its slaves when reproducing music. Only masters are able to "command" all functions.

Slaves are Sonos devices in a Sonos group for which only limited control is possible. If a Sonos device is in a slave role, then it is only possible to control the volume for this device on an individual basis. If the Sonos device is also configured as a master in a master-slave group, the use of the master functions' communication objects may be limited; also see ► Table 5: Overview of a Sonos device's behaviour in the role of a slave in master functions on this matter. It is also possible to use the communication object <<Slave <n> – Switch group association>> to remove the device from the Sonos group. It then takes on the role of a master, which does not necessarily need to be configured as one of the ISE SMART CONNECT KNX SONOS's masters. A stereo pair can also adopt the role of slave.

If the Sonos devices in several rooms are part of a master-slave group, they behave as one room with regard to control.

You will find the differences in controlling a Sonos device as a master or slave in ► Table 4. ► Table 5 describes the behaviour which a Sonos device displays in its role as a slave if you use master functions.

Table 4: Overview of the differences between master and slave

Type	Music playback	Adjust volume	Control slaves
Master	Yes • Transmit commands such as Play, Pause, Stop, Next track. • Select source of music playback, e.g. select a playlist.	Yes • Set volume (absolute or gradual) • A master-slave group's volume is controlled using the group volume.	A master specifies the music for the slaves in its master-slave group.
Slave	No • The master's music	Yes • A master-slave group's volume is controlled using the group volume. • However, a slave's volume can be set on an individual basis.	No

Risk of confusion

Sonos devices can also be assembled in groups or stereo pairs in the Sonos software. The Sonos device in the Sonos software to which you add other Sonos devices when creating a group takes on the role of the master while the added Sonos devices adopt the role of slave. Group creation in the Sonos software thus also has an effect on a Sonos device's available functions in master-slave groups.

Table 5: Overview of a Sonos device's behaviour in the role of a slave in master functions

Master function	Behaviour for radio	Behaviour for Sonos playlist
<<Play>>	• With value <<0>>: <<PlayerIsSlave>> error is sent. • With value <<1>>: The command is ignored.	• With value <<0>>: <<PlayerIsSlave>> error is sent. • With value <<1>>: The command is ignored.
<<Pause>>	• With value <<0>>: The command is ignored. • With value <<1>>: <<PlayerIsSlave>> error is sent.	• With value <<0>>: The command is ignored. • With value <<1>>: <<PlayerIsSlave>> error is sent.
<<Stop>>	• With value <<0>>: The command is ignored. • With value <<1>>: The Sonos device becomes a master and stops the music playback.	• With value <<0>>: The command is ignored. • With value <<1>>: The Sonos device becomes a master and stops the music playback.
<<Next/previous track>>	• <<PlayerIsSlave>> error is sent.	• <<PlayerIsSlave>> error is sent.
<<Next/previous playlist>>	• Next/previous playlist is a radio station: The Sonos device becomes a master and starts playing the selected playlist. • Next/previous playlist is a Sonos playlist: <<general err>> error is sent.	• Next/previous playlist is a radio station: The Sonos device becomes a master and starts playing the selected playlist. • Next/previous playlist is a Sonos playlist: <<general err>> error is sent.
<<Playlist selection>>	• Selected playlist is a radio station: The Sonos device becomes a master and starts playing the selected playlist. • Selected playlist is a Sonos playlist: <<general err>> error is sent.	• Selected playlist is a radio station: The Sonos device becomes a master and starts playing the selected playlist. • Selected playlist is a Sonos playlist: <<general err>> error is sent.
<<Random playback>>	• With value <<0>>: The command is ignored. • With value <<1>>: <<PlayerIsSlave>> error is sent.	• Is ignored.
<<Repeat all>>	• With value <<0>>: The command is ignored. • With value 1: <<PlayerIsSlave>> error is sent.	• Is ignored.

3.4 Master-slave groups

A master-slave group is the logic grouping of six Sonos devices in the ISE SMART CONNECT KNX SONOS. Master-slave groups bring Sonos devices together, so that music can be played in all the master-slave group's rooms in synchronisation. If several rooms form part of a master-slave group, they behave as one room with regard to control.

The master-slave group are dynamically created and also dissolved again during the running time (dynamic group creation). A master-slave group is a Sonos group which comprises a subset of the available Sonos devices which can be used for group creation in the Sonos software. Application example ► Door contact enables dynamic group creation, p. 15.

Risk of confusion

Sonos devices can also be assembled in groups or stereo pairs in the Sonos software. The Sonos device in the Sonos software to which you add other Sonos devices when creating a group takes on the role of the master while the added Sonos devices adopt the role of slave. Group creation in the Sonos software thus also has an effect on a Sonos device's available functions in master-slave groups.

Key data:

- A master-slave group contains a single master.
- You can assign up to five slaves to each master by configuring slaves in a master-slave group.
- You can use an ISE SMART CONNECT KNX SONOS to configure up to ten master-slave groups and thus configure up to 60 different devices.

  As of the date this documentation was printed, Sonos supports a total of up to 32 Sonos products and controllers in a single household. The maximum number of 60 different Sonos devices or 51 Sonos devices in one Sonos group using ten master-slave groups with the same master can therefore only be attained theoretically.
- A Sonos device can be configured as a master or slave in the configuration several times over:
  - A Sonos device can be a master in any number of master-slave groups.
  - A Sonos device can be a slave in any number of master-slave groups.
  - A Sonos device can be configured as a master or slave in different master-slave groups simultaneously.

    ► Both a master and slave in the configuration, p. 30
- A Sonos device is either a master or slave during running time:
  - You can activate or deactivate the defined slaves in a master-slave group as you require.
  - A slave belongs to the master for which it was last activated.
  - If a Sonos device has the role of master before it was activated as a slave, it loses its role as a master and takes on the role of slave.
  - A Sonos device remains a slave until you release it using the <<Exit slave mode>> communication object or remove it from the Sonos group in the Sonos software.
- You can make a Sonos group with up to 51 Sonos devices with all ten master-slave groups if you make suitable configuration settings despite the limit to five slaves per master.

  ► Figure 7: A master controls max. 51 Sonos devices, including itself, p. 29

As of the date this documentation was printed, Sonos supports a total of up to 32 Sonos products and controllers in a single household. The maximum number of 60 different Sonos devices or 51 Sonos devices in one Sonos group using ten master-slave groups with the same master can therefore only be attained theoretically.

During the running time, you can only add the Sonos devices as a slave if you have defined them as such in the configuration in the <<Group <n>>> → <<Settings>> tab for the master-slave group concerned.

The definition of slaves in a master-slave group states which particular Sonos devices can be potentially linked with the master. You can use the communication object <<Slave 1/2/3/4/5 – Switch group association>> to activate individual slaves.

Why must I activate each individual slave in a master-slave group?

The individual activation provides you with greater flexibility. For example, you can switch off the "Doorbell" announcement for the Sonos device in the child's room when they are taking an afternoon nap. You can activate all slaves for the "Dinner bell" announcement, so that no-one in the house misses a hot meal.

What is the largest possible Sonos group that you can create with the ISE SMART CONNECT KNX SONOS?

A Sonos device can be configured as a master in several master-slave groups.
If you then control this Sonos device as a master, you can control all slaves in the corresponding master-slave group, providing you have activated the slaves.

If you configure a Sonos device (here: no. 1) as the master in all ten master-slave groups, you can then add up to 51 Sonos devices to a Sonos group during the running time (see ► Figure 7: A master controls max. 51 Sonos devices, including itself, p. 29).

As of the date this documentation was printed, Sonos supports a total of up to 32 Sonos products and controllers in a single household. The maximum number of 60 different Sonos devices or 51 Sonos devices in one Sonos group using ten master-slave groups with the same master can therefore only be attained theoretically.

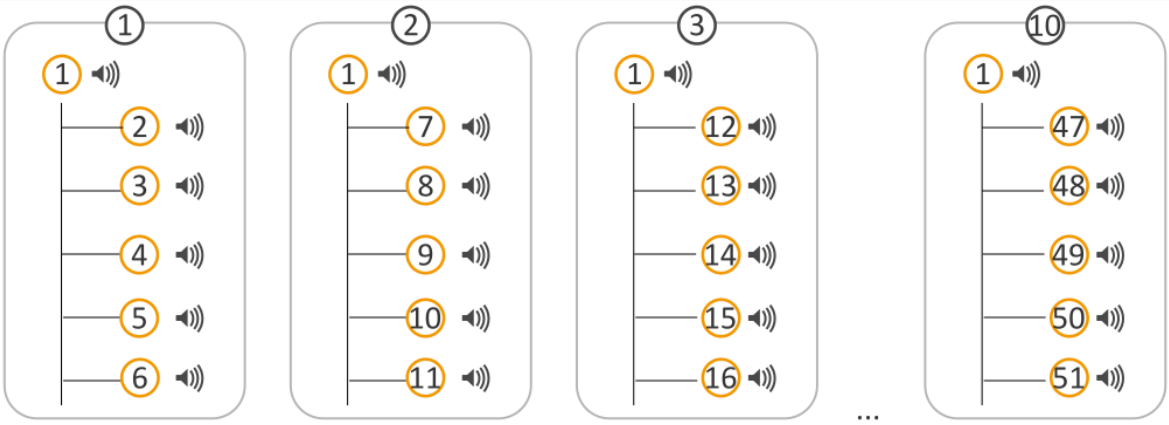


Figure 7: A master controls max. 51 Sonos devices, including itself

3.4.1 Both a master and slave in the configuration

A Sonos device can be a master or slave several times over. However, this only applies to the configuration.

Each Sonos device can only perform one role at any given point in time and thus can only play one specific track and not several tracks at the same time.

In ► Figure 8, you can see that Sonos device 4 is configured in three different master-slave groups:

- As slave in master-slave group 1
- Sonos device 4 is itself the master in two master-slave groups:
    - Master-slave group 3 without slaves
    - Master-slave group 4 with two slaves (Sonos devices 3 and 10)

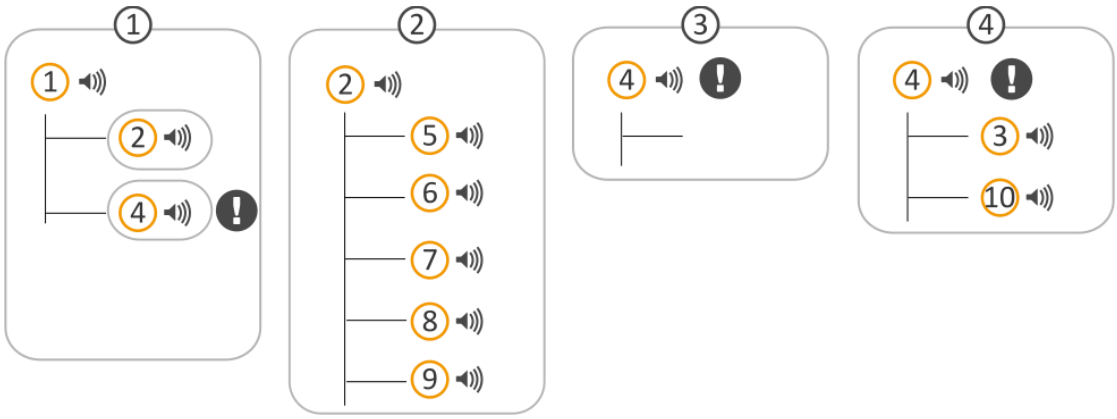


Figure 8: Sonos device is used several times in the configuration

These master-slave groups' configurations can be used to create Sonos groups during the running time (dynamic group creation).

Case study – initial situation:

- All slaves are deactivated; i.e. no Sonos groups have been created.

Case study – continuation 1:

- You activate Sonos devices 2 and 4 as slaves in master-slave group 1.
- Result: Sonos devices 2 and 4 switch from the role of master to the role of slave for master Sonos device 1.
    - Sonos devices 1, 2 and 4 play Sonos device 1's music in synchronisation.
    - The Sonos devices 2 and 4 lose their master functions which they have in master-slave groups 2, 3 and 4.

Case study – continuation 2:

- You now activate Sonos devices 3 and 10 as slaves in master-slave group 4.
- Result: No changes. Why?
  Sonos device 4 continues as a slave and therefore does not have its full master functions to add another Sonos device as a slave to a group. Using a master function does not necessarily automatically mean that the Sonos device switches to the master role. You can only use master functions to a limited extent (also see ► Table 5: Overview of a Sonos device's behaviour in the role of a slave in master functions) until you release it using the <<Exit slave mode>> communication object. It continues to play the music of its master, Sonos device 1. The <<general err>> error is transmitted on the <<System status>> communication object since the slaves cannot be activated. The master-slave group 4 slaves remain inactive.

Things to remember

A slave belongs to the master for which it was last activated.

If a Sonos device had the status "Master" before it was activated as a slave, it loses its status as a master.

A Sonos device remains a slave until you do the following:

- You can use another master-slave group master's <<Exit slave mode>> communication object to remove the device from the group if the said Sonos device is configured as a master there.
- You use the slave's communication object <<Slave 1/2/3/4/5 – Switch group association>> to remove the device from the master-slave group where it is active as a slave.
- You can remove the Sonos device from the Sonos group in the Sonos software.

No interlacing of master-slave groups

Master slave groups cannot be interlaced with one another. A Sonos device is always a master or slave during running time.

In the following diagram, you can see two master-slave groups.

- Master-slave group 1 has configured two slaves (Sonos devices 2 and 4).
- Master-slave group 2 has configured five slaves (Sonos devices 5, 6, 7, 8 and 9).

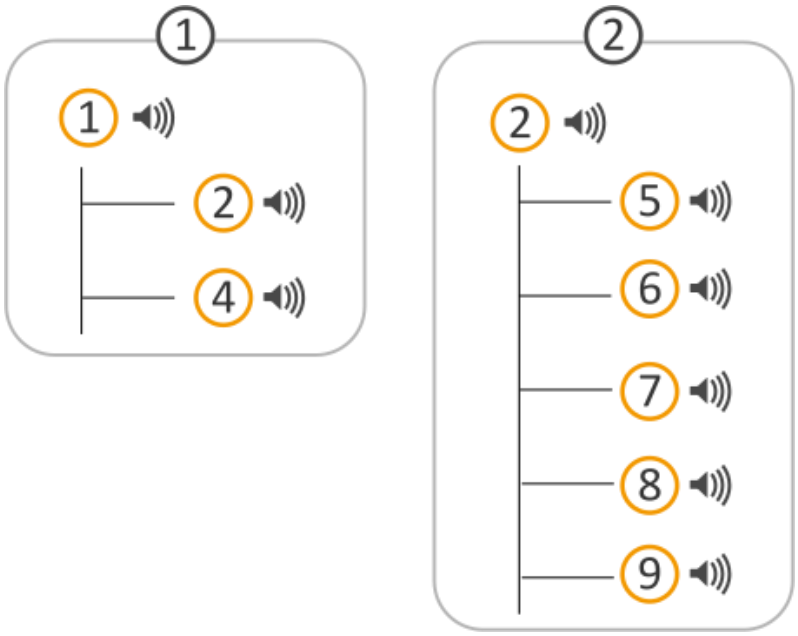


Figure 9: Two master-slave groups (Sonos device 2 configured as a slave and as a master)

Case study – initial situation:

- All slaves in the master-slave group 1 are deactivated.
- All slaves in the master-slave group 2 are activated.

Case study – continuation:

- You now activate only Sonos device 2 as a slave in master-slave group 1.
- Result: The Sonos device 2 slaves in master-slave group 2 are deactivated. Sonos device 2 becomes a slave of Sonos device 1 in master-slave group 1.

  A Sonos device in a master role does not take its slaves with it to a group where it becomes a slave.

3.4.2 Running time error in alternating master-slave relationships

You have now learned that a Sonos device can be a master or slave several times over within the configuration and you are also familiar with a few pitfalls in the usage of Sonos devices.

Alternating master-slave relationships are a frequently useful configuration – for party mode, for example.

Initial situation – configuration in the ETS:

In the following diagram, you can see two master-slave groups.

- Master-slave group 1 has a slave (Sonos device no. 2).
- Master-slave group 2 has a slave (Sonos device no. 1).
- The two masters are thus configured alternately as a slave.

Current use – without slaves:

You use the two master-slave groups without slaves.

Result:

- Sonos device 1 is a master and plays its music.
- Sonos device 2 is a master and plays its music.

You now activate the slaves:

You activate Sonos device 2 as a slave of master 1.

Result:

- Sonos device 2 loses its status as a master and is now a slave of Sonos device 1 in master-slave group 1.
- Sonos device 2 plays master 1's music.

Everything works as planned up until this point. However, if you now try to actuate Sonos device 2 as a master, you receive a running time error (<<general err>> on the <<System status>> communication object) as Sonos device 2 is currently a slave. Use the <<Exit slave mode>> communication object, so that Sonos device 2 can be used as a master again.

3.4.3 Enable master-slave groups in the ETS

You need to enable master-slave groups to configure more than one master.

- To do so, select the required number of groups in the <<General>> tab in the <<Configuration of the master-slave group>> drop-down list.

You need to enable the slave's configuration to be able to assign slaves to a master-slave group.

- To do so, select <<Yes>>in the <<General>> tab in the <<Support for dynamic group creation (master/slave)>> setting.

3.4.4 Dynamic group creation (example: party mode)

We have used some examples below to explain dynamic group creation to you.

A quick reminder:

- A master can play its own music independently of other Sonos devices.
- A slave plays its master's music.

There may be a time when you generally wish to control music for each room but want to play the same music in all rooms on certain occasions.

For example, you would like to play the same music throughout the house during parties (party mode). To do so, the user could set the same playlist for each Sonos device individually for the party, but that would be very laborious. Moreover, the music would then usually not be synchronised, which would be very unpleasant for the party guests. This is where dynamic group creation comes in.

A Sonos device must become a slave within a master-slave group to ensure that it depends on another device. This master-slave group is then used for certain occasions only (dynamic).

Now take a look at the initial scenario first:

- You have one Sonos device for each room (also known as a zone).
    - There is a Sonos device in the dining room (hereinafter referred to as Sonos device 1)
    - There is a Sonos device in the living room (hereinafter referred to as Sonos device 3)
- The Sonos device is a master in each room.

Technically, we now have two master-slave groups which comprise one master each. A master can play its own music independently of other Sonos devices.

- Sonos device 1 is playing music A.
- Sonos device 3 is playing music C.

You configure the playlists on the device website.
► Configure playlists on the device website, p. 62

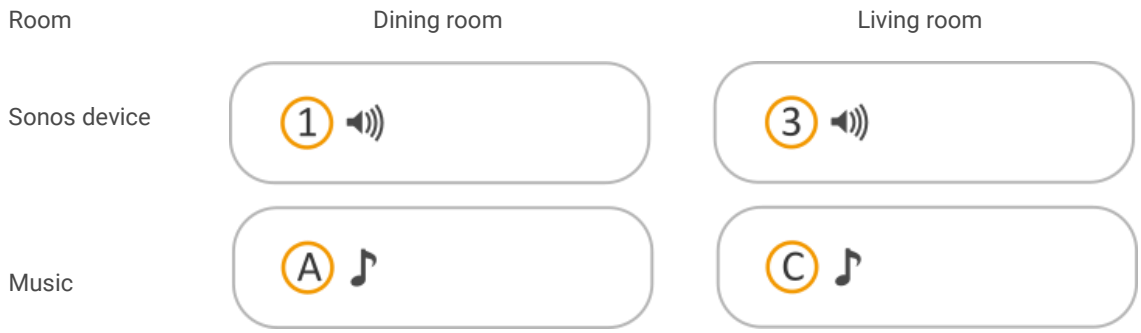


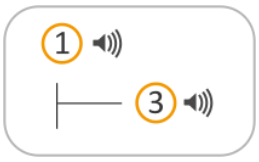
Figure 10: Dynamic zone creation for Sonos devices (initial status) – Sonos devices are masters

Configure party mode

Objective: We wish to do the following:

1. The user wants the dining room music to be played in the living room as well but only when the user expressly wants it to be played – when they press a certain button, for example. The music is to be controlled in the dining room when in party mode.
2. It should still be possible for different music to be played in the two rooms.

Solution: Define two master-slave groups in the ETS.

Room/mode	Master-slave group	Details
Dining room/party mode		Configuration to play different music in the dining room and play the same music in the dining room and living room when required. Sonos device 1 must be the master. Sonos device 3 in the living room should play Sonos device 1's music. Sonos device 3 must be able to become Sonos device 1's slave.
Living room		Configuration to play different music in the living room. Sonos device 3 must be the master.

1. Select the following settings in the <<General>> tab in ETS:

<<Configuration of the master-slave groups>>	<<2 groups>>
<<Support for dynamic group creation (master/slave)>>	<<Yes>>

Two new <<Group <n>> tabs are shown. Slaves can be configured in these tabs.

2. Configure the Sonos device in the dining room as a master and the Sonos device in the living room as a slave. Select the <<Group 1>> tab and configure the settings as follows:

<<Group 1 – master>>	Sonos device 1's IP-address
<<Group 1 – Number of slaves>>	<<1 slave>>
<<Group 1 – Slave 1>>	Sonos device 3's IP address

3. Configure the Sonos device in the living room as a master. Select the <<Group 2>> tab and configure the settings as follows:

<<Group 2 – master>>	Sonos device 3's IP-address
<<Group 2 – Number of slaves>>	<<None>>

You can define what music is finally added on the device website.

► Configure playlists on the device website, p. 62.

How do I activate party mode?

The master-slave group configuration states which particular Sonos devices can be potentially linked with the master.

- Sonos device 1 is a master in the dining room and is playing music A.
- Sonos device 3 is a master in the living room and is playing music C.

Now activate Sonos device 3 as a slave to master 1 using the communication object <<Slave 1/2/3/4/5 – Switch group association>>.

Result: Sonos device 3 loses its status as a master and becomes the slave. Sonos device 3 now plays music A.

Use the <<Exit slave mode>> communication object if you want Sonos device 3 to be used as a master again.

Create more groups in the Sonos software

You can use your Sonos app to combine any number of rooms into a group or, alternatively, create a stereo pair. Groups not shown on the ISE SMART CONNECT KNX SONOS are thus also possible.

To do so, activate the desired master-slave group and add other devices to this group using the Sonos app. In this way, the entire group can be controlled with the group telegram (and thus the KNX operating devices) of this master via KNX.

Dynamic group creation is easily activated or deactivated using 1-bit group telegrams on the KNX.

4 Technical data

Power supply and connections	
Rated voltage:	DC 24 V to 30 V Supply via external DC.
Power consumption:	2 W
Connections:	• KNX: Bus connection terminal (black / red) (included in the scope of supply) • External power supply: Power supply terminal (white / yellow) (included in the scope of supply) • IP: 2x RJ45 (integrated switch)
microSD card slot:	microSD-cards up to 32 GB (SDHC) microSD cards must be formatted in FAT32. (not included in the scope of supply)

Ambient conditions	
Storage temperature:	-25 °C to +70 °C
Ambient temperature of installation environment:	0 °C to +45 °C

Device dimensions	
Installation width:	34 mm (2 HP)
Installation height:	90 mm
Installation depth:	74 mm (REG Plus)

KNX SPECIALIST	
Communication:	• KNX: KNX/TP • IP: Ethernet 10/100 BaseT (10/100 Mbit/s)
Installation method:	S-mode
ETS version:	• ETS4 from v4.2 • ETS5 or higher

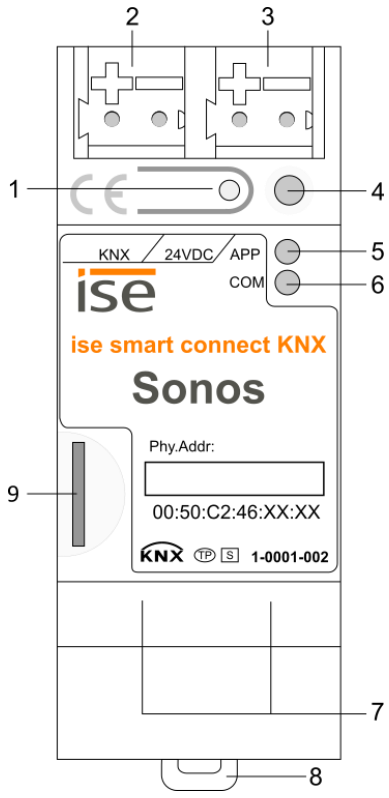
Approvals and protection type	
Approvals / certifications:	CE, KNX
Protection type:	IP20 (compliant with EN 60529)
Protection class:	III (compliant with IEC 61140)

5 Device design

Stated directions always relate to the device in its installed position. In the installation position:

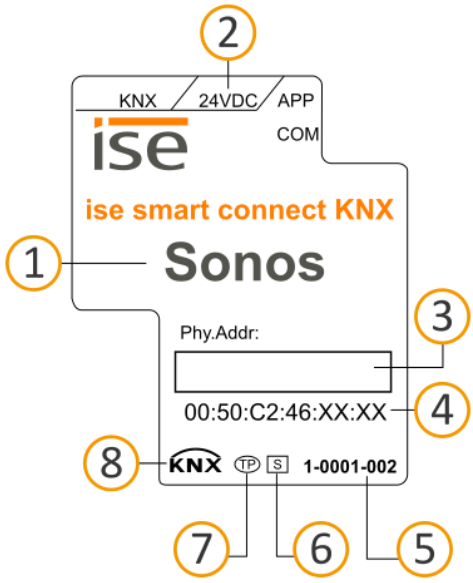
- Connections, external power supply, KNX and openings for connection (top)
- Network connections (bottom)
- Device sticker with product name and other information (front)
- Top-hat rail terminal (back)

5.1 Front (in the installation position)



No.	Description	
1	Button:	Programming button
2	Connection:	KNX/TP
3	Connection:	External power supply
4	LED:	"Programming" LED (red)
5	LED:	"APP" LED: Operation indication (green)
6	LED:	"COM" LED: Communication KNX/TP (yellow)
7	Connection:	IP: 2x RJ45 (integrated switch) On underside of device! (Section ► Underside (network connections), p. 40)
8	Slider:	Release lever for top-hat rail terminal Used for disassembly (Section ► Disassembly and disposal, p. 110)
9	Connection:	microSD card slot As optional network authorisation (network drive) for audio files for playback by Sonos components. microSD-cards up to 32 GB (SDHC) microSD cards must be formatted in FAT32. (not included in the scope of supply)

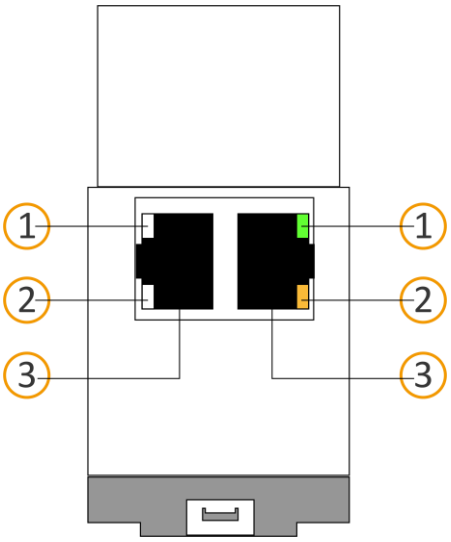
5.2 Data on device sticker (front)



No.	Description
1	Product name
2	Rated voltage
3	Physical address: Enter the assigned physical address in the field with a permanent marker.
4	MAC address
5	Order number
6	Installation method, here "S mode"
7	Transfer medium, here "TP"
8	KNX certification

5.3 Underside (network connections)

The network connections are located on the underside of your device.

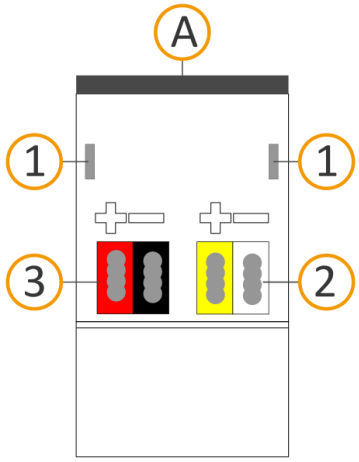


No.	Description
1	"Connection speed" LED • LED lights up green: 100 Mbit/s • LED is off: 10 Mbit/s (There is no connection, is LED 2 also off? Then check whether the cable is correctly connected.)
2	"Communication" LED • LED lights up yellow-orange: Connected but currently no telegram traffic • LED flashes yellow-orange: Telegram traffic
3	IP: 2x RJ45 (integrated switch)

5.4 Top

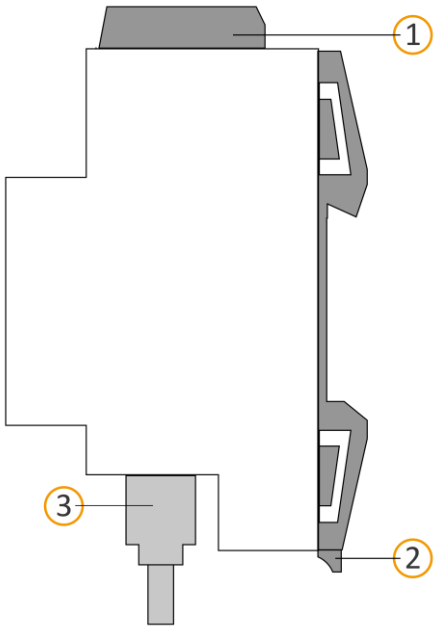
The openings for securing the cover cap are located on the top of the device.

Stated directions always relate to the device in its installed position. For orientation: (A) = back (back of the device).



No.	Description
1	Openings for securing the cover cap
2	Attached power connection terminal
3	Attached bus connection terminal

5.5 Side of device



No.	Description
1	Device with attached cover cap
2	Release lever for top-hat rail terminal
3	RJ45 cable (not included in the scope of supply) connected to RJ45 socket

Figure 11: Side of device, including cover cap and connected RJ45 cable

6 Device website

You can access ISE SMART CONNECT KNX SONOS via the “Device website” application”.

The device website offers the following functions (extract):

- ► Configure playlists, p. 62.
- ► Check device status, p. 106.

  The master-slave groups' current status is also displayed on the <<Device status>> page. You can see immediately whether a Sonos device is currently a master or slave.
- ► Update firmware, p. 59
- ► Reset to factory settings, p. 57
- ► Generate log files, p. 107

The device website is run on your installed browser. You do not require any additional software.

Device website not displayed?

Cause: The browser used is simply not supported or the particular browser version is not supported.

➢ We support current market standard browsers such as Google Chrome, Microsoft Edge and Mozilla Firefox in their current versions as a minimum (as of the date this documentation was printed). Older versions of the browsers may work. However, we recommend that you keep your browser up to date for security reasons alone if nothing else.

As soon as the device is available you can access the device website via the IP.

The device website is password-protected. However, the device is already prepared for potential future password protection. The initial password can be found on one of the product stickers.

Device website: Calling up the start screen

1. Call up the device website by actioning one of the following:
   - Enter the device’s IP address in the address bar of your browser.
   - Alternatively, select the device in the network environment category <<Other devices>> (► p. Figure12 [1]): Double click on the device icon (2).

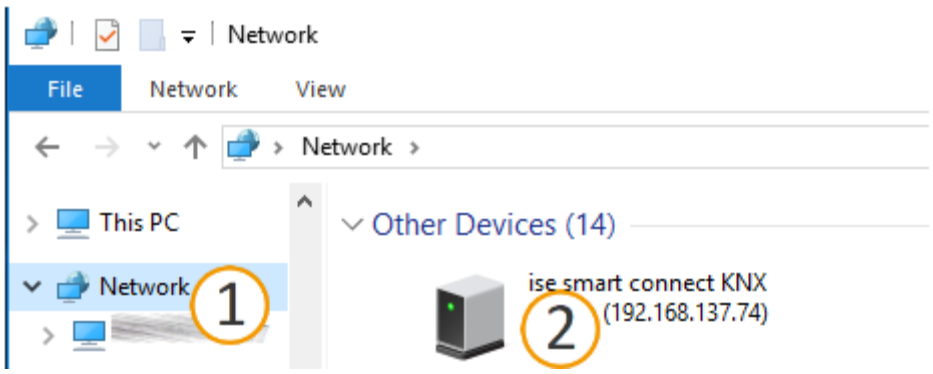


Figure12: Calling up the device network via the network environment

The device website start page is displayed.

6.1 Getting to know the interface of the device website

The device website start page always shows the configuration of the playlist for the first master-slave group.

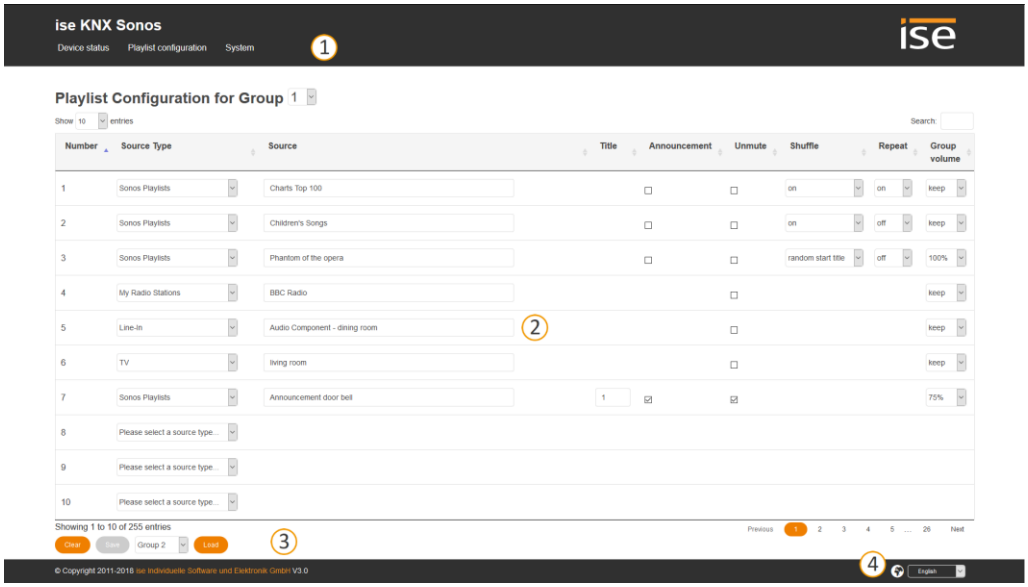


Figure 13: Elements of the device website interface from the start screen

1) Menu bar: Call up other pages or run functions.

2) Page: The <<Playlist assignment>> page is shown.

3) Buttons for the current page (not available on all pages).

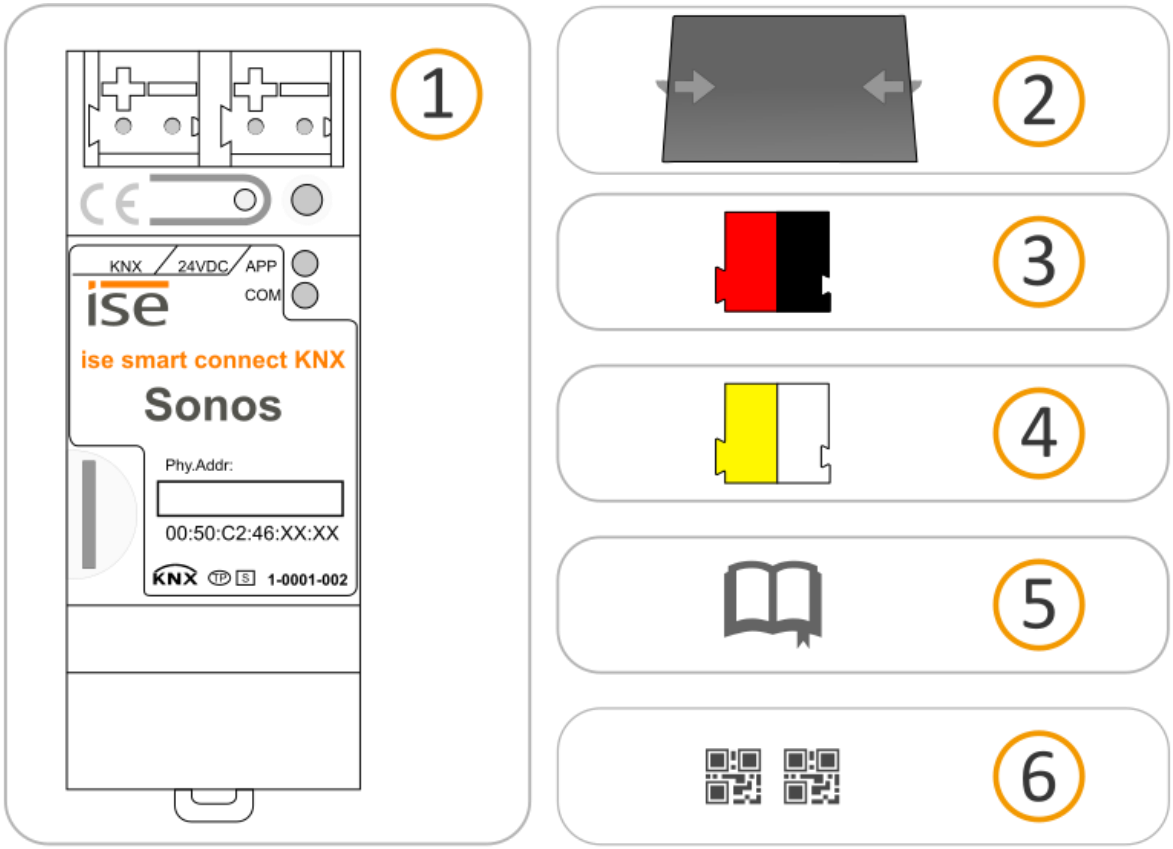
4) Status bar: You can choose the language in the status bar.

Table 6: Functions overview

Menu	Description
Device status	Information: • General system information • Device state: Here, you can see information on the configured Sonos devices among other things. Functions: • ► Change logging mode, p. 107 • Switch device to programming mode
Playlist configuration	Function: • ► Configure playlists on the device website, p. 62
System	Information: • Liability notice and licenses Functions: • ► Reset to factory settings, p. 57 • ► Generate log files, p. 107 • ► Update firmware, p. 59 • Restart device

7 Installation

7.1 Unpacking (scope of supply)



1) Device: ISE SMART CONNECT KNX SONOS

2) Cover cap: A cover cap can be mounted for secure isolation to protect the bus connection / power supply connection from dangerous voltage, particularly in the connection area.

3) Bus connection terminal

4) Power connection terminal

5) Installation instructions: The documentation in front of you also provides you with the information from the installation instructions but with additional details, application examples, project planning notes and much more.

> The installation instructions are part of the product.
> ➢ Give these instructions to your customer.

6) Additional set of stickers with data for KNX Secure.
These stickers are also affixed to the device.

PACKAGING AND BOX	
	Dispose of the packaging material appropriately, in a card, paper or plastic recycling bins.

7.2 Checking the installation conditions

Before starting with the mounting process, check that the requirements for the planned installation environment have been met.

Installation environment - Requirements

- Pay attention to the ambient temperature of the installation environment: Min. 0 °C, max. +45 °C.
- Do not mount the ISE SMART CONNECT KNX SONOS above heat-emitting devices.
- Ensure that there is sufficient ventilation / cooling.
- Pay attention to the device depth: REG-Plus.
  Device depth cf. ► Figure 14 (1).

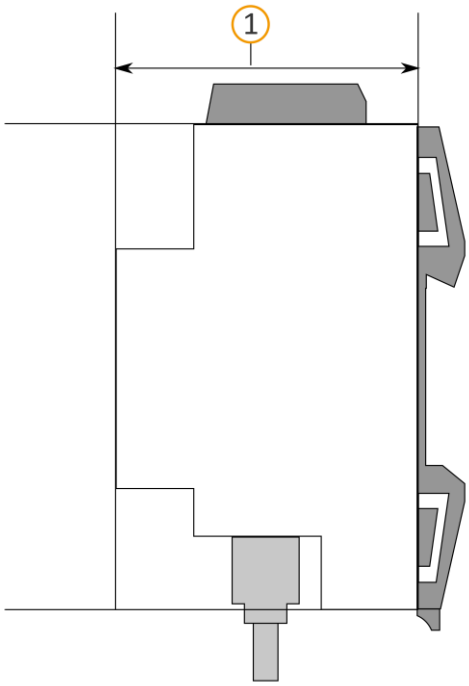


Figure 14: Side of device

Material

You do not need a data rail because the device is connected directly to KNX/TP via the bus connection terminal.

7.3 Mounting the device

ISE SMART CONNECT KNX SONOS may only be assembled and installed by qualified electricians. Specialist knowledge of the installation regulations is a prerequisite.

WARNING

Danger from incorrect use

Incorrect use can result in damage to the device, fire or other dangers.

- Only qualified electricians may install and mount electrical devices.
- Follow the instructions in this product manual.
- This product manual is part of the product and must remain with the customer.

INSTALLATION ENVIRONMENT

Device functional fault due to incorrect ambient temperature in the installation environment

- Pay attention to the ambient temperature of the installation environment: Min. 0 °C to max. 45 °C
- Do not mount the ISE SMART CONNECT KNX SONOS above heat-emitting devices.
- Ensure that there is sufficient ventilation / cooling.

WARNING

Danger of electric shock

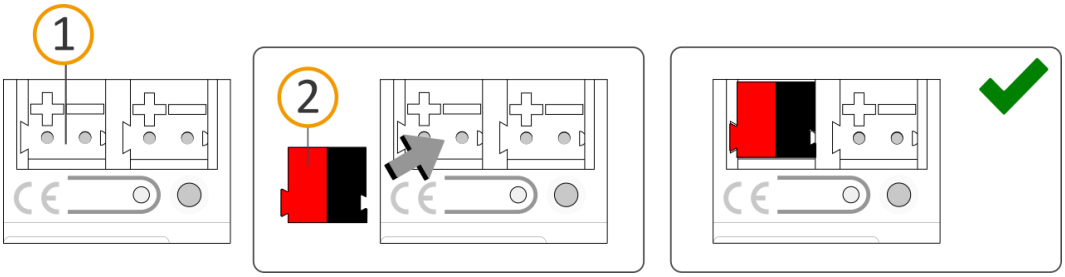
An electric shock can result from touching live parts in the installation environment. Electric shock can cause death.

Pay attention to the installation regulations:

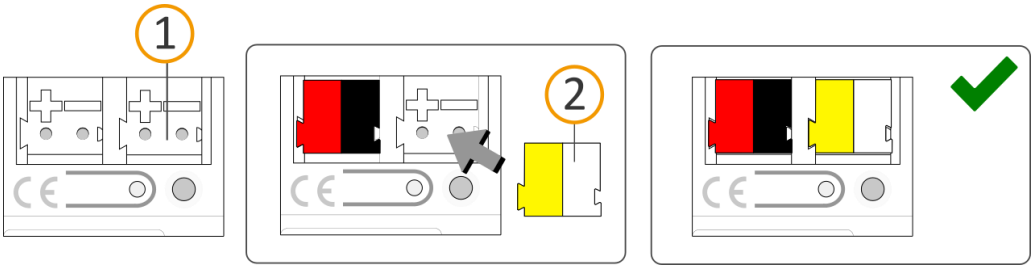
- Route the bus line with the sheathing intact until it is close to the bus connection terminal.
- Firmly press the bus line into the bus connection terminal as far as possible.
- Install bus line conductors without sheathing (SELV) reliably separated from all non safety low-voltage cables (SELV/PELV):
- Maintain the specified clearance.
- Use the supplies cover cap if necessary.
- Also see the VDE regulations governing SELV (DIN VDE 0100- 410 / "Safe separation", KNX installation regulation) for more information.

Mounting and connecting the device

1. Snap the device vertically onto the top-hat rail (installation position: network connections at bottom).
2. Connect the KNX/TP bus line (referred to below as the bus line) to the KNX connection of the device (1) by means of the supplied bus connection terminal (2).
   Polarity: left/red: (+), right/black: (-).
   a. Attach the bus connection terminal (2).
   b. Route the bus line with the sheathing intact until it is close to the bus connection terminal.
   c. Firmly press the bus line into the bus connection terminal as far as possible.
   d. Route the bus line to the back.



3. Connect the external power supply to the power supply terminal (1) by means of the supplied power connection terminal (2).
   Polarity: left/yellow: (+), right/white: (-).
   a. Attach the power connection terminal (2).
   b. Route the power line with the sheathing intact until it is close to the power connection terminal.
   c. Firmly press the power line into the power connection terminal as far as possible.
   a. Route the power supply line to the back.



POWER SUPPLY DIMENSIONING

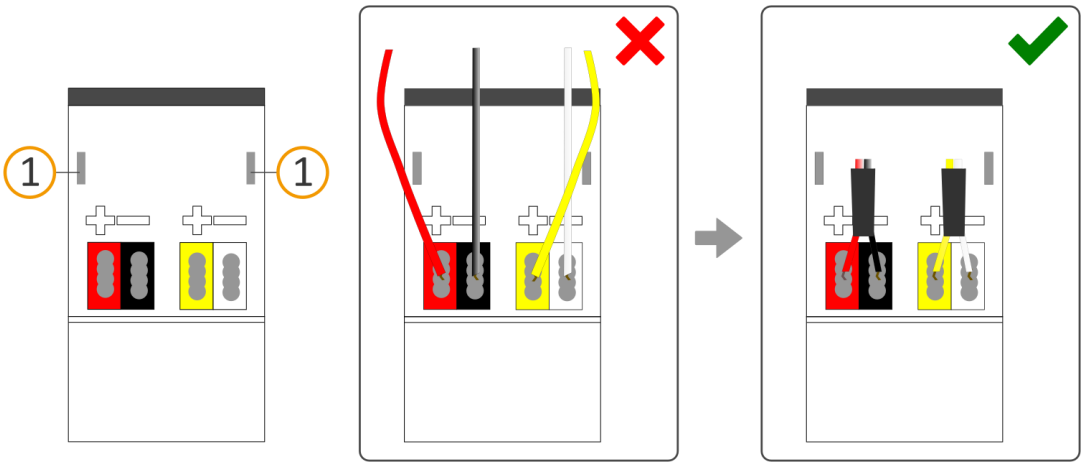
Functional fault in all devices due to incorrectly dimensioned power supply

The following applies if you use the "un-choked" auxiliary supply output of a KNX power supply as an additional power supply:

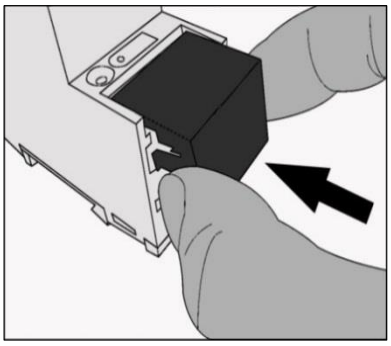
➢ The operating currents of all KNX/TP devices on the line section must not exceed the rated current of the power supply.

4. If it is a regulatory requirement for the site, fit the cover cap:

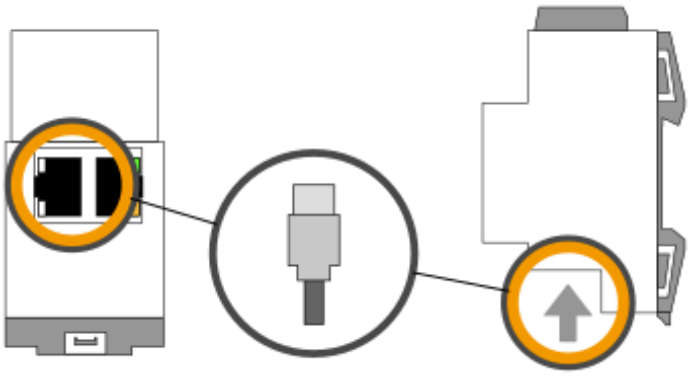
   a. Route all cables to the rear if you have not already done so.
   The openings for fastening (1) the cover cap must be clear.
   All cables must be between the openings:



   b. Attach the cover cap over the connection terminals.
   Press the cover cap together gently.
   Route the cover cap's fastening claws into the openings until the cover cap noticeably engages.



5. Connect the network:
   The network connections are located on the underside of the device.
   Connect the IP network cable (RJ45 cable) to the device's network connection (RJ45 pin jack).



8 Commissioning and configuration

After installing the device and connecting the bus, power supply and network, the device can be commissioned.

The device is configured in the ETS (Engineering Tool Software). The ETS is available with various ranges of functions from the KNX Association (www.knx.org).

All descriptions in this documentation relating to commissioning in the ETS refer to the variant "ETS Professional" in the version 5.

8.1 Reading off the device status using the LEDs

The following status indicators (LEDs) can be found on the front panel.

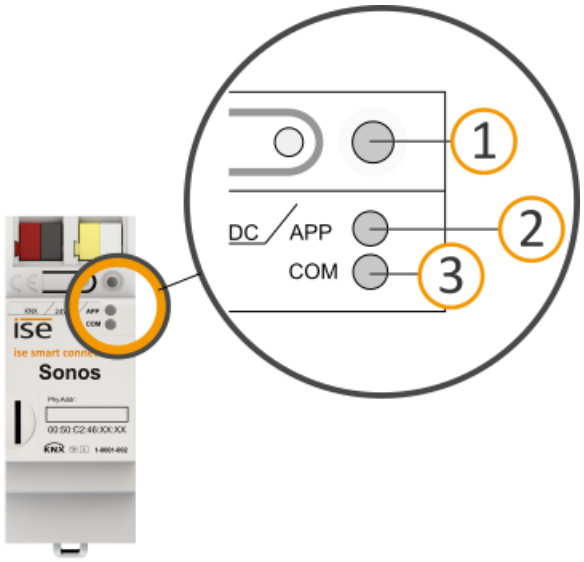


Figure 15: Status indicators (LEDs) on the front of the device

No.	Description
1	"Programming" LED Shows whether the programming mode is active.
2	"APP" LED: Operation indication (green) Serves as a status indicator for the application.
3	"COM" LED: Communication KNX/TP (yellow) Shows the communication traffic of KNX/TP.

The "APP" and "COM" LEDs have different meanings depending on the phase in the operating mode:

- Device start
  ► Table 9: Status of the device – Device starting up, p. 51
- Running operation
  ► Table 10: "APP" LED in operation, p. 52
  ► Table 11: "COM" LED in operation, p. 52

The "Programming" LED shows independently of the operating mode whether the device is in programming mode or not.

Table 7: Status of the device – Programming mode

Colour	Description
● (red continuously on)	Programming mode is active. ► Assigning the physical address., p. 57
○ (off)	Programming mode is deactivated.

The status indicators for the network are on the underside of the device.

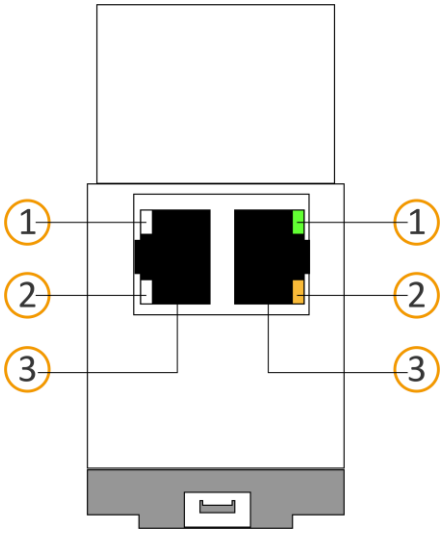


Table 8: Status of the device – Network

No.	Description
1	"Connection speed" LED • LED lights up green: 100 Mbit/s • LED is off: 10 Mbit/s (There is no connection, is LED 2 also off? Then check whether the cable is correctly connected.)
2	"Communication" LED • LED lights up yellow-orange: Connected but currently no telegram traffic • LED flashes yellow-orange: Telegram traffic
3	IP: 2x RJ45 (integrated switch)

8.1.1 LEDs when the device starts up

After the power supply (DC 24 V on the yellow-white power connection terminal) is switched on or after power returns, the device indicates its status using the following LED combinations:

Table 9: Status of the device – Device starting up

APP	COM	Description
Correct operation		
○ (off)	● (yellow)	Device starting up.
● (green)	● (yellow)	Device booted up and ready for operation.
Error		
○ (off)	○ (off)	No power supply. ➢ Check the connections and the power supply.
○.....●.....○.....●..... (off).....(green).....(off).....(green)..... Slow flashing (about 1 Hz)	● (yellow)	The device is fully started up but is not yet configured. The system is configured S mode. ➢ Configure the device in the ETS.
○.....●.....○.....●..... (off).....(green).....(off).....(green)..... Slow flashing (about 1 Hz)	○ (off)	The device is fully started up but is not yet configured. The system is configured S mode. ➢ Configure the device in the ETS. Connection to KNX is interrupted. ➢ Check whether the KNX and voltage connections are mixed up. ➢ Check the bus connection. Check whether the power supply is correctly connected.
○.●.○.●.○.●. (off).(green).(off).(green).(off).(green). Rapid flashing	○ (off)	The firmware cannot be started. ➢ Please contact support. ► Contacting Support, p. 108
○.....●.....○.....●..... ●.....○.....●.....○..... (off).....(green).....(off).....(green)..... (yellow).....(off).....(yellow).....(off)..... Slow flashing (about 1 Hz) in an alternating pattern		The newly loaded firmware cannot be started. The system is trying to activate the previous firmware (invalid firmware). ➢ Please contact support. ► Contacting Support, p. 108

8.1.2 LEDs in operation

Once device start-up is complete, the meaning of the LEDs is as follows:

Table 10: "APP" LED in operation

APP	Description
(green)	The device is working perfectly (normal operation).
.....(green).....(off).....(green)..... (off).....(green).....(off).....(green)..... Slow flashing (about 1 Hz) without pause	The device is fully started up but is not yet configured. The system is configured S mode. ➢ Configure the device in the ETS.
.....(green).....(off).....(green).....(off).....(green) (off).....(green).....(off).....(green).....(off).....(green) 3x slow flashes (1 Hz), then 2 s pause	Not all configured Sonos devices can be reached at present. If devices are switched off to save power, an error is not in effect.
(off)	Device currently starting up or is out of operation. ➢ Wait until the device start-up process is complete. ➢ If the device is still out of operation, check the connections and the power supply.

Table 11: "COM" LED in operation

COM	Description
(yellow)	• KNX connection has been made. • No KNX telegram traffic. The LED is also deemed to be continuously on if brief irregular interruptions occur.
.(yellow).(off).(yellow).(off).(yellow). (off).(yellow).(off).(yellow).(off).(yellow). Rapid flashing	• KNX connection has been made. • KNX telegram traffic.
Error	
(off)	Connection to KNX is interrupted. ➢ Check whether the KNX and voltage connections are mixed up. ➢ Check the bus connection. ➢ Check whether the power supply is correctly connected.

8.2 Configuration

The device is configured in the ETS (Engineering Tool Software). The ETS is available with various ranges of functions from the KNX Association (www.knx.org).

All descriptions in this documentation relating to commissioning in the ETS refer to the variant "ETS Professional" in the version 5.

"ETS" software help is available in the integrated ETS Online Help.

➢ Press the [F1] button.

Before configuration:

Work step	Details in the section
1. Install the device.	► Mounting the device, p. 46
2. Connect the Sonos system to the data network and set it up with the help of the software supplied with the Sonos components.	See Sonos documents
3. Install the ISE SMART CONNECT KNX SONOS on the same IP network as the Sonos components and make settings on the IP network router if necessary.	See Sonos documents See the router documentation

8.2.1 Overview of configuration

Work step	Details in the section
1. Creating ISE SMART CONNECT KNX SONOS as the device in the ETS.	► Creating the device in the ETS., p. 54
2. In the ETS, assign the physical address of the device so as it corresponds to the KNX topology.	
3. Either select the option <<Get IP address (of a DHCP server) automatically>> for the device or enter the following settings manually: • IP address • IP subnet mask • Standard gateway address	► Setting the IP address, IP subnet mask and standard gateway address, p. 55
4. Set the general parameters.	► Configuring parameters, p. 70
5. Create stereo pairs in the Sonos software if required.	See Sonos documents
6. Configure the master-slave groups: If you have selected a number of groups in the drop-down list in the general settings in the setting <<Configuration of the master slave groups>>, individual <<Group <n>>> tabs are now available.	► <<Group <n>>> tab, p. 72
7. Link the group addresses to the communication objects.	

8. ISE SMART CONNECT KNX SONOS is now ready for commissioning via <<Program ETS>> and for testing the functions.

9. Configure the playlist for each of the configured master-slave groups in the ETS on the device website.

► Configure playlists on the device website, p. 62

8.2.2 Creating the device in the ETS.

Depending on whether the product database entry already exists in the ETS catalogue or whether the device is already being used in your existing project, different work steps are required in order to use the current version.

Work steps	
Device already exists in the ETS catalogue?	
Yes	No
Updating product database entry. During an update, the old product database entry is replaced by the new one.	Importing product database entry There are numerous possibilities for importing a new product database entry. Below we will assume that you have downloaded the product database entry yourself. ► Importing a new product database entry, p. 54
Device in existing project should be updated?	
Yes	No
You must update the device properly so that the existing links to group addresses are maintained. ► Updating a product in the existing project, p. 55	Add the device to the topology in the usual way.

There are numerous possibilities for importing a new product database entry. Below we will assume that you have downloaded the product database entry yourself.

Importing a new product database entry

Requirement: You have downloaded the product database entry (product file) from our website under www.ise.de.

1. Start the ETS and select the <<Catalogue>> tab on the Start page.
2. Select the <<Import>> button in the toolbar.
3. In the <<Open product file>> window, open the product file and press on the <<Open>> button to confirm your selection.

   ETS analyses the file.
4. Follow the further instructions in the ETS. If necessary, call up the Online Help with the [F1] button.

Updating a product in the existing project

Requirement: New product database entry exists in the catalogue.

1. In the ETS, open the project for which the device is to be updated.
2. Search for the new product database entry in the catalogue and add the new version of the device to the devices in your project.
3. Select the old version of the device in the topology.
4. Under <<Properties>>, select the <<Information>> → <Application program>> tab.
5. Select the <<Update>> button beneath the <<Update application program version>> text (3).

   If you have accidentally changed the value in the <<Change application program>> (2) drop-down list, cancel this action or you will lose the links to the group addresses.

6. Select the newly added device and delete it again from the topology.

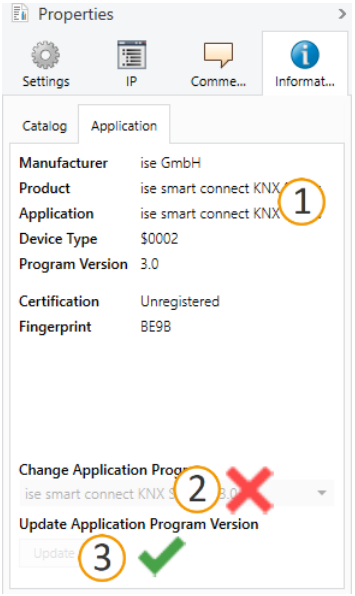


Figure 16: Updating the application program

8.2.3 Setting the IP address, IP subnet mask and standard gateway address

Besides the physical address in the KNX network, an address, the subnet mask and the address of the standard gateway in the IP data network must be assigned to ISE SMART CONNECT KNX SONOS.

You can enter the settings manually in the ETS or receive them automatically (obtain the data from a DHCP server, e.g. integrated in the router of the data network).

Setting the IP address, IP subnet mask and standard gateway address

1. Select the device in the ETS and select <<Properties>> in the context menu.

   The <<Properties>> section of the device is displayed in the side bar of the ETS.

2. Select the <<IP>> tab (2).
3. Select one of the option fields (3):
   Settings: see ► Table 12: Settings for manual IP address entry or for receiving automatically, p. 56.
4. If you have selected the setting <<Use permanent IP address>>, then enter the respective addresses in the fields (4).

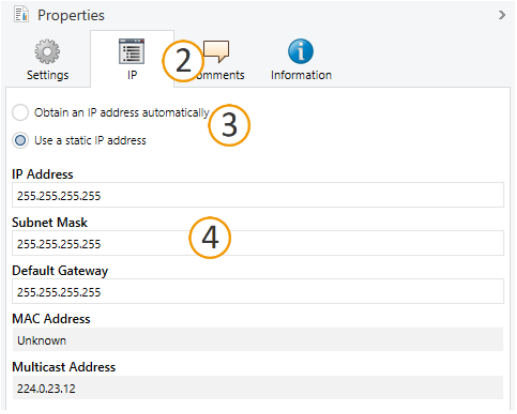


Figure 17: IP addresses and other settings in the properties of a device

Table 12: Settings for manual IP address entry or for receiving automatically

Setting	Description
Receive IP address automatically	The address data is automatically received from a DHCP server located on the data network. The DHCP server must assign a valid IP address to ISE SMART CONNECT KNX SONOS. **Use fixed IP addresses with DHCP** If you are using DHCP for your Sonos devices, you must configure your router in such a way that the same IP address is always assigned to a Sonos device (fixed IP address). You have entered the IP addresses for the Sonos devices in the configuration for the master-slave groups. The IP address is used to identify the Sonos devices. If a Sonos device now receives a different IP address, it can no longer be addressed via the ISE SMART CONNECT KNX SONOS. Please refer to your router's manual for information on how to configure this. If a DHCP server is not available, the device starts up after a waiting time with an automatic IP address in the address range of 169.254.1.0 to 169.254.254.255. As soon as a DHCP server is available, the device is automatically assigned a new IP address.
Use a permanent IP address	Enter the data manually You can usually obtain the permitted IP address range and the subnet mask and standard gateway from the router configuration interface. **SERIOUS MISCONFIGURATION** Default values are set if you select the setting <<Use permanent IP address>> but then forget to fill in the appropriate fields. This will result in the device not starting up properly. Reset the device to its factory settings. ► Resetting to factory settings, p. 57 If problems should persist, contact Support.

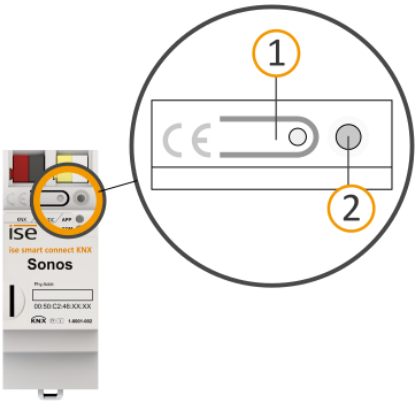
8.2.4 Programming a physical address

The physical address that you issued in the ETS must be assigned to the device. We refer here to "programming". To do this you must put the device into Programming mode.

Assigning the physical address.

Requirements: Device and bus voltage switched on. Programming LED is off.

1. Press the programming button (1) briefly.
   The programming LED (2) lights up red.
2. In the ETS, assign the device and its physical address corresponding to the KNX topology.
3. Enter the assigned physical address in the <<Phy. Addr.>> field on the device with a permanent marker.



Recognising successful assignment of the physical address:

- Device: The programming LED on the device is off.
- ETS. The completed transfer is indicated on the <<History>> tab by a green marking. Programming flag <<Adr>> is set and <<Cfg>> is not set.
  More information about this and other flags is available from the ETS documentation.

After the IP address is assigned, you can also conveniently set the device to Programming mode on the device website instead of pressing the programming button on the device itself.

8.2.5 Resetting to factory settings

When you reset the device to the factory settings, it behaves as if it were in the state of delivery. The device is then unconfigured:

- However, it remains in the existing projects.
- The device keeps the version of the application program in the ETS.
- The entire parametrisation is rejected.
- The device now once again has this as the physical address: 15.15.255.

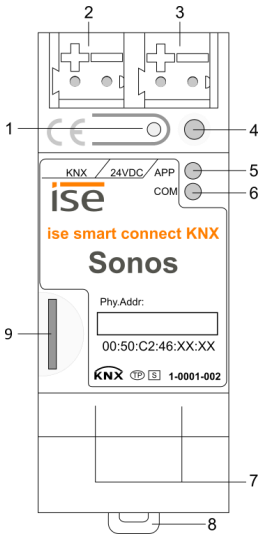
You can identify a non-configured device by the green APP LED flashing slowly after the device starts up.
► Table 9: Status of the device – Device starting up, p. 51

You have the following possibilities for resetting the device to the factory settings:

- Manual: Press the programming button on the device in a particular sequence.
- Automated: You select the <<Factory reset>> function on the device website.

Manually resetting the device to the factory settings

Requirement: The device is switched off.



1. Press the programming button (1) and keep it pressed while you switch on the device.
   Continue to hold the programming button down.
2. Wait until the following LEDs all start to flash slowly at the same time:
   - Programming LED (4)
   - APP LED (5)
   - COM-LED (6)
3. Release the programming button briefly.
4. Press the programming button again and keep it pressed until following LEDs are all flashing rapidly at the same time:
   - Programming LED (4)
   - APP LED (5)
   - COM-LED (6)
5. Release the programming button.
   The device is reset to the factory settings.
   You do not have to restart the device.

Resetting the device to the factory settings via a function on the device website

1. Open the device website.
   Section ► Device website: Calling *up the start screen*, p. 42
2. Select <<System>> → <<Factory reset>> in the menu bar.
3. Confirm the confirmation prompt.
   The start screen is displayed as soon as the device is reset to its factory settings.
   The device does not have to be restarted.

8.2.6 Transferring application programs and configuration data

After programming the physical address, the application program, parameter settings and group address connections can be transferred to the device.

The connection to the device can be further established via a direct IP connection or KNX/TP for this purpose.

We recommend using the direct IP connection due to the significantly shorter transfer times.
Select the tab <<Bus>> → <<Connections>> → <<Options>> → <<Use direct IP connection if available>>.

Transfer project planning data

1. Select <<Commissioning>> → <<Programme>> → <<Application program>>.
2. Wait after the download while the device copies the data and installs the application.
   Commissioning is complete.

8.3 Extending the scope of functions (updating firmware)

Functional enhancements for ISE SMART CONNECT KNX SONOS are available via a newer version of the firmware. Simply download the latest firmware and the relevant product manual from our web site www.ise.de.

So that you can use the new functions, it is necessary for the versions of the firmware being used and the product database entry are compatible.

8.3.1 Updating the firmware via the device website

You can only import a new firmware version that is newer than the current version on the device.

No downgrade!
Previous versions cannot be imported.

Depending on whether the device has an Internet connection, there is another variant to update.

- Online: Import firmware automatically online.
- Off-line: Import firmware offline.
  Use this variant for devices which do not have an Internet connection at their installation site and are only accessible via the local network.

Import firmware automatically online

1. Log in to the device website.
2. Select <<Update firmware>> in the <<System>> → menu bar.
   The system determines which firmware version is currently installed.
   If a new firmware version is available for the device it will be indicated to you.
   You will be informed about incompatibilities.
   ► *Determining compatibility between the product database entry and firmware version, p. 60*
3. Select the <<Update firmware>> button.

Importing firmware offline

NO COMPATIBILITY CHECK

The system does not check whether the current configuration is compatible with the new firmware. You must check yourself whether the firmware is compatible with the product database entry.
► Determining compatibility between the product database entry and firmware version, p. 60.

Requirement: You have downloaded the current firmware version from the www.ise.de website.

1. Log in to the device website.
2. Select <<Update firmware>> in the <<System>> → menu bar.
3. Select the <<Select file>> button.
4. In Explorer, select the desired firmware file and confirm your selection with the <<Open>> button.
5. Select the <<Update firmware>> button.

8.3.2 Determining compatibility between the product database entry and firmware version

So that you can use the device's new functions, the version of the firmware used must be compatible with the version of the device's application program in the project. The application program is part of the product database entry.

The application program version can be found in the ETS under <<Properties>> under the tab <<Information>> → <<Application program>> under <<Program version>>.

Determining compatibility at a glance - fully compatible

The versions are fully compatible if the main version of the application program and firmware are identical. The version numbers are structured according to the following scheme: <<Main version no.>>.<<Sub-version no.>>

Example 1: Full compatibility with same main version numbers

- Firmware version: 2.3
- Application program version: 2.0

However, you might still have to update the application program in order to be able to use all new functions.

► Updating a product in the existing project, p. 55

Incompatible: Main version number of the firmware is higher than that of the application program number

If the new firmware has a higher main version number than that of the application program, the versions are incompatible. You must uninstall the application in the ETS in such a case. The device is not configured after it is uninstalled but it keeps its physical KNX address:

- However, it remains in the existing projects.
- The device keeps the version of the application program in the ETS.
- The entire parametrisation is rejected.
- User data in the ETS is preserved.

Example 2: Incompatibility if the main version number of the firmware is higher

- Firmware version: 2.3
- Application program version: 1.3

Establishing compatibility

Requirement: New product database entry exists in the catalogue.

1. In the ETS, open the project for which the device is to be updated.
2. Search for the new product database entry in the catalogue and add the new version of the device to your project.
3. Select the old version of the device in the topology.
4. In the <<Topology>> window in the menu bar, select the <<Uninstall>> → <<Application program>> button.

> After uninstalling, the device behaves as in the state of delivery. The device is then unconfigured. Then start connection as usual. ► Overview of configuration, p. 53

5. Under <<Properties>>, select the <<Information>> → <Application program>> tab.
6. Select the <<Update>> button under the <<Update application program version>> text.
7. Select the newly added device and delete it again from the topology.

9 Configure playlists on the device website

A playlist is a music compilation. Various additional settings can be made for the playlists, configured on the device website, such as random playback of tracks on a Sonos playlist. Save all default settings for each master-slave group in a playlist.

9.1 Configure playlists

A playlist may consist of up to 255 items. The item itself offers a variety of configuration options, depending on the source type that you select.

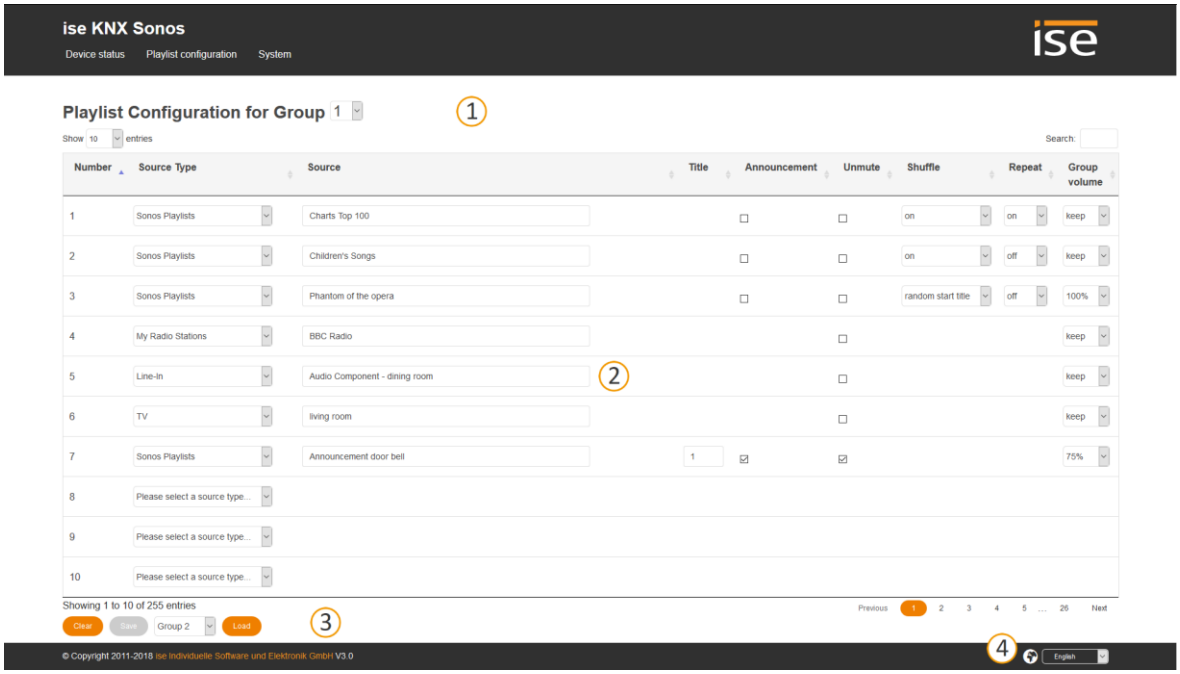


Figure 18: Device website for playlist configuration

1) Number of master-slave groups currently displayed.
   This number refers to the number of the master-slave group in the ETS.
   Example: If you see <<1>> here, you configure the playlists for the master-slave group <<Group 1>>.

2) Configuration area.

3) Buttons for the master-slave group currently displayed.

Initial display

If the device is properly configured and the master of the first master-slave group can be contacted, the start page displays the available sources.

The device loads the sources from the <<Sonos playlists>> and <<My Radio Stations>> configured with the Sonos software and any existing external source types. All playlists are displayed first, followed by all stations, all in alphabetical order.

Change master-slave group

You can identify which master-slave group is currently being displayed from the number in the <<Playlist configuration for group>> fold-down list (see (1) in ► Figure 18: Device website for playlist configuration, p. 62).

- If you wish to configure another master-slave group, enter the number of the desired group in the <<Playlist configuration for group>> fold-down list. This number refers to the number of the master-slave group in the ETS.

Configuration of playlists without a connection established to the Sonos system

You can also configure the playlists for groups without a connection to the Sonos system to be used at a later point in time. It is thus possible for the end user to configure them before using the ISE SMART CONNECT KNX SONOS.

Special characteristic: Since no connection has been established, the sources cannot be downloaded from the Sonos software. As a result, you need to enter the name in the <<Source>> setting yourself. The name must match the name that you specify in the Sonos software at a later stage. Take into account upper case and lower case characters and the Sonos system naming conventions, such as the number of characters. Obviously, it is possible to build up an internal system (e.g. through the use of number ranges) by "omitting" individual numbers.

Table 13: Playlist configuration – settings on the <<Playlist assignment>> page

Setting	Description
<<Number>>	Number of the item within the playlist of the master-slave group concerned.
<<Source type>>	Source type. Possible values: • Sonos Playlists • Radio stations • Line-in (only available with Sonos Connect/Sonos Connect:Amp) • TV (only available with Sonos Playbar) **TV: Sonos Playbar** If the source is played and the Sonos Playbar is not the master of the group, it automatically becomes this group's master. The previous master becomes the slave and is no longer able to control the group.

Setting	Description
<<Source>>	Name of the source.  **Find sources** If the source exists in the Sonos software, it is displayed in the selection list. Always check whether the source still exists in the Sonos software since sources removed in the meantime can still be selected. The selection list is limited to 2000 entries on the display. Alternatively, allocate the name yourself. Naturally, it is possible to build up an internal system (e.g. through the use of number ranges) by "omitting" individual numbers.  **Enter sources yourself** Allocate the name yourself; for example, if you configure playlists without a connection to the Sonos system to be used at a later point in time. The name must match the name that you specify in the Sonos software at a later stage. Take into account upper case and lower case characters and the Sonos system naming conventions, such as the number of characters. Obviously, it is possible to build up an internal system (e.g. through the use of number ranges) by "omitting" individual numbers.
<<Title>>	Number of the track which is used to start if the source is selected. If you do not enter a number, the playlist starts with the first track.
<<Announcement>>	The source is a Sonos playlist with the special "Announcement" function. Announcements interrupt other playlists. More information: ► Announcement mode, S. 67  **Setting not available?** • This setting is only available for the <<Sonos Playlists>> source type. • If the <<Announcement>> setting is activated, the following settings are ignored and hidden on the interface: <<Random function>>, <<Repeat>>.

Setting	Description
<<Never mute>>	Cancels muting for the entire master-slave group. The master-slave group receives the group volume which has been defined in the <<Group volume>> setting. Use case: You have switched a radio station to mute and now switch to a Sonos playlist with the "Announcement" function. If you have selected the <<Never mute>> setting for the announcement entry, the announcement can now only be heard at the group volume; otherwise, it would continue to be muted and you would not hear the announcement.  **Special characteristic with announcements** As soon as the system switches back to the interrupted source after an announcement, the original group volume is restored. If, for example, sound is currently muted and the system has switched to an announcement for which <<Never mute>> has been defined, sound is automatically muted against as soon as the system switches back to the interrupted source.
<<Random function>>	Play track in a Sonos playlist in a random sequence.  **Risk of confusing "Shuffle" and "Random"** The random playback using the <<Random function>> corresponds to the "Shuffle" function and not "Random". Difference between shuffle and random • Shuffle: Each track in the Sonos playlist is played just once. • Random: The same track can be played more than once.  **Setting not available?** • This setting is only available for the <<Sonos Playlists>> source type. • If the <<Announcement>> setting is activated, <<Shuffle>> is ignored and hidden on the interface. Possible values: • <<Unchanged>>: Play playlist unchanged. If "Random playback" has been activated in another application, the Sonos playlist will play in a random sequence. • <<On>>: Play track in the Sonos playlist in a random sequence. • <<Off>>: Deactivate random mode. Even if "Random playback" has been activated in another application, random playback is now deactivated. • <<Random start track>>: Select only the track used to start at random. All following tracks will be played in the configured sequence. If the start track happens to be the last track in the playlist, then only this one track is played.

Setting	Description
<<Repeat>>	Play Sonos playlist repeatedly any number of times. The first track in the Sonos playlist is automatically played again after the last track. **Setting not available?** • This setting is only available for the <<Sonos Playlists>> source type. • If the <<Announcement>> setting is activated, <<Repeat>> is ignored and hidden on the interface. Possible values: • <<Unchanged>>: Play Sonos playlist unchanged. • <<On>>: Activate repeat. • <<Off>>: Deactivate repeat. Sonos playlist is played just once to the end. Even if "repeat" has been activated in another application, random playback is now deactivated.
<<Group volume>>	The group volume affects all Sonos devices within the master-slave group in relation to their own individual volumes. It changes each peripheral's individual volume and thus uniformly adjusts the overall volume of the master-slave group.

Table 14: Buttons on the <<Playlist assignment>> page

Button	Description
<<Delete>>	Empties the current list. If this cleared list is saved, the page again displays the available sources after reloading.
<<Save>>	Saving the configuration is the only way to ensure that a certain music source can always be reached using its assigned number.
<<Group <n>>>	Master slave group whose configuration is to be loaded. Then select the <<Load>> button to load.
<<Load>>	Loads the master-slave group configuration which you indicated in the <<Group <n>>> fold-down list. Use this function if you would like to create a new configuration which only differs slightly from another master-slave group. More information: ► Configure new playlists faster, S. 68 **Risk of confusion** Use the <<Playlist configuration for group>> fold-down list to edit a different master-slave group. Do not select <<Load>>.

How can I rename a Sonos playlist?

Use your Sonos software, such as your app, to rename playlists.

Manual adjustment required

Renaming is not applied to the KNX environment automatically.

Search for the old name for the Sonos playlist among the playlists on the device website. Then edit the name in the <<Source>> setting.

9.1.1 Announcement mode

Announcement mode is only available for the <<Sonos Playlists>> source type.

Announcements interrupt other sources. The source which was interrupted is then played again once the system has played through all the announcement tracks. The original group volume will also be reinstated. The return will have different effects, depending on the source:

- Radio station: The system will switch back to the radio station.
- Sonos playlist: The playlist resume playing precisely at the point where it was interrupted.

The announcement mode does not have any influence on the group creation and only functions like all sources when the player configured as master is not currently being used as a slave.

Random playback or repeat is activated

If the random playback or repeat mode is activated, the announcement deactivates these modes for the duration of the announcement.

➢ Announcements consisting of several tracks will always be played in the normal order and end after the last track.

Interruption due to selecting another source or due to stopping

If the announcement is interrupted by selecting a different source or by stopping, the ISE SMART CONNECT KNX SONOS does not restore the mode active before the announcement.

Pausing the announcement does, however, activate immediate return to the previous playback mode.

9.1.2 Random playback

Random playback is only available for the <<Sonos Playlists>> source type. "Random" means that the tracks in a Sonos playlist are not played in the configured sequence; the playback sequence is random.

Risk of confusing "Shuffle" and "Random"

The random playback using the <<Random function>> corresponds to the "Shuffle" function and not "Random". Each track in the Sonos playlist is played just once.

"Random start title" use case

The recording of a musical is divided into several pieces which are interlinked. The pieces are each a track and saved in a Sonos playlist. A completely random playback would be very annoying in this case, but you wouldn't necessarily always want to hear the musical from the beginning.

The <<Random function>> → <<Random start tile>> is used in this case. Only the title used to start is selected at random. All following tracks will be played in the configured sequence.

"Random playback of all titles" use case

The music should not be always played in the same sequence during a party.

<<Random function>> → <<On>> is used in this case. The sequence of all tracks in the Sonos playlist is then played at random. Your guests will not get bored since every track in the Sonos playlist is only played just once.

9.2 Configure new playlists faster

If there are only minimal differences in configurations for two master-slave groups, it is easier to copy an existing configuration and then simply modify the differing parts.

Create new playlist based on a copy

Requirement: Playlist which is to be copied is configured.

1. Change to a new master-slave group by selecting the corresponding group number from the fold-down list.
2. Select the master-slave group whose configuration you wish to copy in the fold-down list next to the <<Load>> button.
3. Select the <<Load>> button.
4. Change the configuration if necessary.
5. Select the <<Save>> button.

9.3 Reproduction from microSD card

The microSD card is optional and allows the audio files saved on it to be streamed. The device microSD card holder can take memory cards with a capacity of up to 32 GB. The FAT32 file system is supported, and authorisation is read-only.

As soon as a microSD card is inserted into the ISE SMART CONNECT KNX SONOS, the contents can be read via the Windows network authorisation.

Read contents on Windows network authorisation

We take no responsibility for configuration instructions within the Sonos software. The Sonos software is not a ise Individuelle Software und Elektronik GmbH product. We do not guarantee the topicality or accuracy of documentation for third-party products.

1. Enter the IP address of the device, followed by the directory data, e.g. *\\192.168.137.109\data*, in the Windows Explorer.

Use fixed IP addresses with DHCP

If you are using DHCP, you must configure your router in such a way that the same IP address is always assigned to the ISE SMART CONNECT KNX SONOS (fixed IP address).

Please refer to your router's manual for information on how to configure this.

2. Use the Sonos software to access authorisation with the Sonos devices. Select the menu item <<Manage>> → <<Music library settings>>.
3. Enter the URL above under the <<Folder>> item without specifying the user name and password.

   The music files on the microSD card are now available under the <<Music Library>> item in the Sonos application.

MP3 playlists

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You will find the MP3 playlists which you have saved on the microSD card under <<Music Library>> → <<Imported playlists>> within the Sonos software.

You first need to add a Sonos playlist to use MP3 playlists with the ISE SMART CONNECT KNX SONOS. Use the Sonos software to add lists.

If you import new music onto the microSD card at a later stage and you are not able to see them in the Sonos software, you need to update the Music Library in the Sonos software.

10 Configuring parameters

The tabs are then briefly described in the <<Parameter>> view. Refer to the specific sections for precise details.

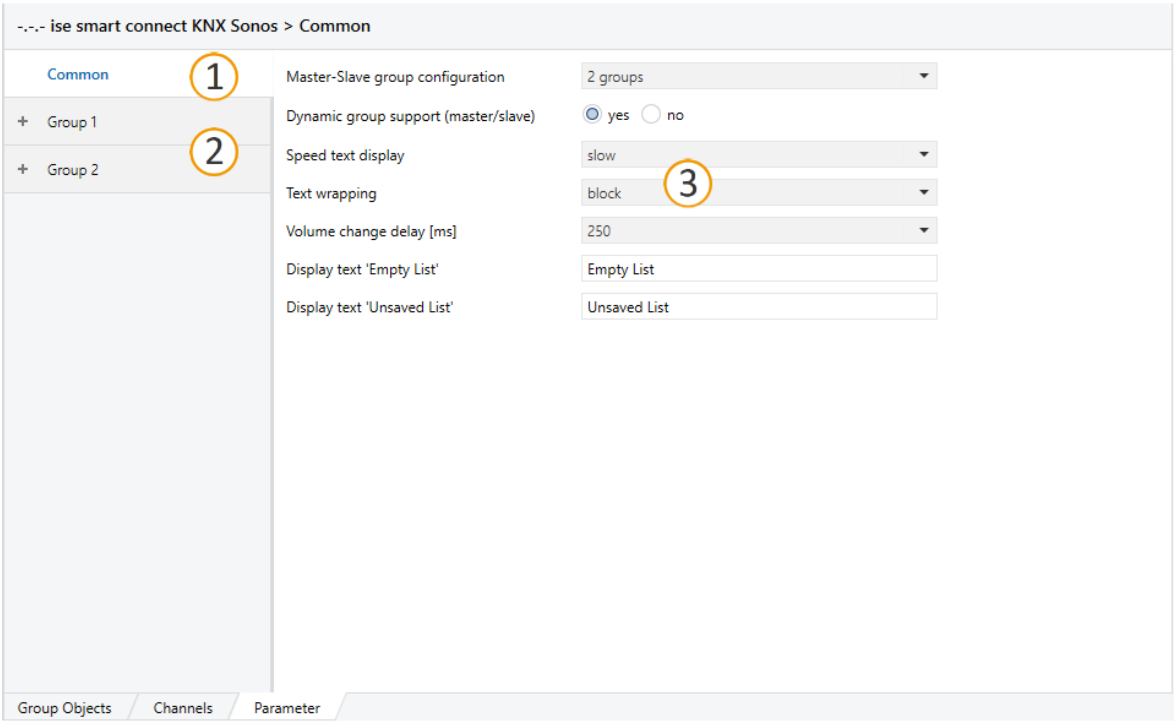

Figure 19: Parameters in ETS

1) Settings that are valid for all connected Sonos devices.

2) Configuration of master-slave groups.

3) Configuration area: The parameters of the selected tab are configured here.

10.1.1 <<General>> tab (general settings)

The default value of each parameter is marked in **bold**.

Parameters	Entry/Selection	Remarks
Configuration of the master-slave groups	**Automatic detection (only a master without slaves)**	Any available Sonos device from the local network is selected automatically and used as a master of the first group. Do not use this mode if multiple Sonos devices are available on the local network. The selection can change at any time if another Sonos device is detected.

Parameters	Entry/Selection	Remarks
	1 group | 2 groups | … | 10 groups	Determines the number of master-slave groups for which communication objects are to be available. A new <<Group <n>> tab is shown per master-slave group.  Use the <<Channels>> tab to display the communication objects for each master-slave group.
Support for dynamic group creation (master/slave)	**Yes** No	Enable slave configuration.  This setting will not be displayed if you have selected the value <<Automatic detection (only a master without slaves)>> under <<Configuration of the master-slave group>>. Select *Yes* to make the communication objects available for group volume and to activate the parameters for slave IP addresses. Select *No* if you only want to configure the masters and do not need slaves or communication objects for the group volume.
Text display speed	**Slow** Normal Fast	Controls the cycle rate at which group telegrams are sent for artist/track/album texts to create a ticker effect. Pay attention to the bus load here (cyclical telegrams with maximum data width). KNX/TP can transmit up to 25 telegrams of this type per second. If in doubt, choose the *Slow* setting or deactivate cyclical transmission by selecting shortened display in the *Text wrap* parameter.
Text wrap	Ticker text	Artist/track/album texts which are longer than 14 characters are displayed as repeating sequences of 14-character telegrams. The text is run through from beginning to end. Each telegram begins one character further back in the text as the previous one. The speed of the ticker text can be set with *Text display speed*.
	Block-by-block	Artist/track/album texts which are longer than 14 characters are displayed as sequences of telegrams. Unlike ticker text, the increment is a full 14 characters, not just one character per telegram. The speed of the block-by-block display can be set with *Text display speed*.

Parameters	Entry/Selection	Remarks
	Shortened	If an artist/track/album track exceeds 14 characters, the rest is truncated and not displayed on the KNX. This mode generates the lowest bus load, as a telegram is only transmitted if the title actually changes.
Volume delay [ms]	50 100 **250** 500 750 1,000	Sets the time delay between two steps of the relative volume control ("Dimmer").
'Empty List' display text	**Empty List**	Sets the value which accepts communication object 26 <<Playlist name>> if there are no tracks to play in the playback queue on the Sonos master.
'Unsaved List' display text	**Unsaved List**	Sets the value which accepts communication object 26 <<Playlist name>> if a track is selected in the playback queue that does not come from a saved Sonos playlist.

10.1.2 <<Group <n>>> tab (define master-slave groups)

There is a tab for each master-slave group into which you enter the master and slave devices' IP addresses.

The Sonos devices are identified by their IP address. A correctly configured master-slave group consists of the master as a minimum. If a master needs to be able to control other Sonos devices as slaves, select the required number in the <<Group <n> – Number of slaves>> setting. Then enter the Sonos devices' IP addresses in the corresponding <<Group <n> – Slave <m>>> fields.

Master slave groups can control considerably more than five Sonos devices with one master despite the limit of five slaves per master.

► Figure 7: A master controls max. 51 Sonos devices, including itself, p. 29

Tab to configure the master-slave groups not available?

To ensure that the tabs to configure the master-slave groups are available, you need to select the required number of groups in the <<General>> tab in the <<Configuration of the master-slave group>> setting. If you have selected the value <<3 groups>>, for example, you will be offered three <<Group <n>>> tabs.

Configuration of the slaves in the master-slave group not available?

To be able to configure slaves, you need to select <<Yes>>in the <<General>> tab in the <<Support for dynamic group creation (master/slave)>> setting.

Concept

During the running time, you cannot simply add any Sonos device as a slave. You can only add those Sonos devices that you have defined as such in the <<Group <n>>> → <<Settings>> tab in the configuration for the master-slave group concerned.

The definition of slaves in a master-slave group states which particular Sonos devices can be potentially linked with the master. You can use the communication object 40 <<Slave 1/2/3/4/5 – Switch group association>> to activate individual slaves.

Why must I activate each individual slave in a master-slave group?

The individual activation provides you with greater flexibility. For example, you can switch off the "Doorbell" announcement for the Sonos device in the child's room when they are taking an afternoon nap. You can activate all slaves for the "Dinner bell" announcement, so that no-one in the house misses a hot meal.

Table 15: Settings for master-slave groups

Parameters	Entry/Selection	Remarks
Group #N - Master	The IP address of a Sonos device e.g. 192.178.168.20	This device can be controlled as the master. Only IPv4 addresses can be used. When you enter a fixed IP address for the master (instead of <<Auto-Discover>>), the ISE SMART CONNECT KNX SONOS's full functions are available, including master-slave groups and dynamic group assignment. (Also see Chapter 10.1.3 “Determine IP addresses of the Sonos devices in the data network”.) **IP addresses for stereo pairs** The Sonos software and the ISE SMART CONNECT KNX SONOS regard a stereo pair as a single (1) "visible" Sonos device. You only need to enter the stereo pair's IP address within the ETS. This is the IP address of the Sonos device which you have designated the first device in the stereo pair in the Sonos software.
	0.0.0.0	**Special case in group 1** If you do not enter an IP address for the master in group 1, the setting <<Automatic detection (only a master without slaves)>> is activated. This means: • Any available Sonos device from the local network is selected automatically and used as a master of the first group. • All other master-slave groups are ignored.
Group #N – Number of slaves	None 1 slave | 2 slaves | ... | **5 slaves**	Only available if *Support for dynamic group creation* (cf. 10.1.1 "<<General") is activated. Determines the number of slave addresses which can be set. A set of group objects is activated for each slave.

Parameters	Entry/Selection	Remarks
Group #N – Slave #M	The IP address of a Sonos device	The local IP address can be entered for each slave here. ► Determine IP addresses of the Sonos devices in the data network, p. 74 **IP addresses for stereo pairs** The Sonos software and the ISE SMART CONNECT KNX SONOS regard a stereo pair as a single (1) "visible" Sonos device. You only need to enter the stereo pair's IP address within the ETS. This is the IP address of the Sonos device which you have designated the first device in the stereo pair in the Sonos software.
	0.0.0.0	Special case: Slave not available.

10.1.3 Determine IP addresses of the Sonos devices in the data network

You need the Sonos device IP address to configure the relevant Sonos device as a master or slave within the ETS. The Sonos PC software provides a quick support option to determine the IP addresses of the Sonos devices.

IP addresses for stereo pairs

The Sonos software and the ISE SMART CONNECT KNX SONOS regard a stereo pair as a single (1) "visible" Sonos device. You only need to enter the stereo pair's IP address within the ETS. This is the IP address of the Sonos device which you have designated the first device in the stereo pair in the Sonos software.

Determine IP address of Sonos devices in the Sonos software

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1. Launch the Sonos software for PCs.
2. Select the <<About my Sonos system>> item in the Help menu.

A message will appear containing a list of your Sonos devices and your names and the current IP addresses, e.g.:

Example 3: Linked ZP: 192.168.137.80

Play:3	Guest room
Serial number	00-0E-58-F1-7A-9C:C
Version	5.0 (Build 26176230)
Hardware version	1.8.1.2-2
IP address	192.168.137.80
OTP	

Play:5	Living room
Serial number	00-0E-58-85-E3-18:D
Version	5.0 (Build 26176230)
Hardware version	1.16.4.1-2
IP address	192.168.137.98
OTP	1.1.1(1-16-4-zp5s-0.5)

Use fixed IP addresses with DHCP

If you are using DHCP for your Sonos devices, you must configure your router in such a way that the same IP address is always assigned to a Sonos device (fixed IP address).

You have entered the IP addresses for the Sonos devices in the configuration for the master-slave groups. The IP address is used to identify the Sonos devices. If a Sonos device now receives a different IP address, it can no longer be addressed via the ISE SMART CONNECT KNX SONOS.

Please refer to your router's manual for information on how to configure this.

11 Communication objects

You can control up to ten master-slave groups with the ISE SMART CONNECT KNX SONOS. There is an identical set of communication objects for each master-slave group. The functionally identical communication objects in the master-slave groups each have an offset of 100.

Example 4: Offset of the communication objects
Master-slave group 1 communication object 1 → Communication object number 1 + Offset 100 =
Master-slave group 2 Communication object number 101

Use the <<Channels>> tab to display the communication objects for each master-slave group.

11.1 Connecting group addresses to group objects

The following group objects are available for the connection of group addresses at the ISE SMART CONNECT KNX SONOS.

The shortened for "group" is sometimes used for "master-slave group" in the communication objects tables.

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
1 (Group 1) | 101 (Group 2) |... | 901 (Group 10)	Play	Write	1 bit	1,010	C-W--
Rubric:	Play	Data type:		Start/Stop	
Function:	Group 1/2/.../10 – Music playback				
Description:	1: Play 0: Pause				

Fallback in the event of a fault

If playback doesn't work, because the Sonos playback queue is empty, the first playlist entry is selected as a fallback. Announcements are omitted, however, so a following playlist entry may be selected.

Example: Playlist entries 1 and 2 are configured as announcements. Playlist entry 3 is not an announcement. The system wants to select the first playlist entry as a fallback, but it is an announcement. The system now tries playlist entry 2, but it is also an announcement. Playlist entry 3 is not an announcement and is played.

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
2 (Group 1) | 102 (Group 2) |... | 902 (Group 10)	Pause	Write	1 bit	1,003	C-W--
Rubric:	Play	Data type:		Enable	
Function:	Group 1/2.../10 – Pause music playback				
Description:	0 = Play 1 = Pause				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
3 (Group 1) | 103 (Group 2) |... | 903 (Group 10)	Stop	Write	1 bit	1,010	C-W--
Rubric:	Play	Data type:		Start/Stop	
Function:	Group 1/2.../10 – End music playback				
Description:	"Stop" cancels the source selection in contrast to the "Pause" function. 0 = Play 1 = Stop				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
4 (Group 1) | 104 (Group 2) |... | 904 (Group 10)	Playback state	Read	1 bit	1,010	CR-T-
Rubric:	Play	Data type:		Start/Stop	
Function:	Group 1/2.../10 – Indicates whether music is being played or the music playback is paused or stopped				
Description:	0 = no playback active 1 = playback running				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
5 (Group 1) | 105 (Group 2) |... | 905 (Group 10)	Pause state	Read	1 bit	1,003	CR-T-
Rubric:	Play	Data type:	Enable		
Function:	Group 1/2/.../10 – Indicates whether the music playback has been paused, music is being played or music playback has been stopped				
Description:	0 = Playback in progress or stopped 1 = Playback paused				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
6 (Group 1) | 106 (Group 2) |... | 906 (Group 10)	Stop state	Read	1 bit	1,010	CR-T-
Rubric:	Play	Data type:	Start/Stop		
Function:	Group 1/2/…/10 – Indicates whether the music playback has been stopped, music is being played or music playback has been paused				
Description:	0 = Playback in progress or paused 1 = Playback stopped				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
7 (Group 1) | 107 (Group 2) |... | 907 (Group 10)	Volume control	Write	1 byte	5,001	C-W--
Rubric:	Volume	Data type:	Percent (0 to 100%)		
Function:	Group 1/2/.../10 – Set volume of master (absolute)				
Description:	Enables setting of the volume over the bus: 0 corresponds to 0% 255 to 100% volume				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
8 (Group 1) | 108 (Group 2) |... | 908 (Group 10)	Volume state	Read	1 byte	5,001	CR-T-
Rubric:	Volume	Data type:	Percent (0 to 100%)		
Function:	Group 1/2/.../10 – Current volume of master				
Description:	Supplies the volume value via the bus: 0 corresponds to 0% 255 to 100% volume				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
9 (Group 1) | 109 (Group 2) |... | 909 (Group 10)	Relative volume control	Write	4 bit	3,007	C-W--
Rubric:	Volume	Data type:	Dimmer step		
Function:	Group 1/2/.../10 – Increase or decrease volume of master				
Description:	Enables relative volume to be made louder/quieter over the bus. Suitable transmitters include push button sensors with the "Brighten/Dim" function, for example.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
10 (Group 1) | 110 (Group 2) |... | 910 (Group 10)	Volume control louder/quieter	Write	1 bit	1,007	C-W--
Rubric:	Volume	Data type:	Step		
Function:	Group 1/2/.../10 – Increase or decrease volume of master by 5%				
Description:	Enables relative volume adjustment louder/quieter in increments up to 5% using 1-bit group telegrams: 0 = quieter by 5% 1 = louder by 5%				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
11 (Group 1) | 111 (Group 2) |... | 911 (Group 10)	Muting	Write	1 bit	1,003	C-W--
Rubric:	Volume	Data type:		Enable	
Function:	Group 1/2/.../10 – Mutes music playback of the master				
Description:	Muting: Switches the loudspeaker off (1) or on again (0) without changing the current volume value.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
12 (Group 1) | 112 (Group 2) |... | 912 (Group 10)	Muting state	Read	1 bit	1,003	CR-T-
Rubric:	Volume	Data type:		Enable	
Function:	Group 1/2/.../10 – Indicates whether the master is muted				
Description:	Supplies the status of muting: 0: Loudspeaker is switched on. 1: Loudspeaker is switched off.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
13 (Group 1) | 113 (Group 2) |... | 913 (Group 10)	Next/previous track	Write	1 bit	1,007	C-W--
Rubric:	Song	Data type:		Step	
Function:	Group 1/2/.../10 – Skip to next or previous track				
Description:	Switches to the next (1) or previous (0) track.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
14 (Group 1) | 114 (Group 2) |... | 914 (Group 10)	Next/previous playlist	Write	1 bit	1,007	C-W--
Rubric:	Playlist	Data type:	Step		
Function:	Group 1/2/.../10 – Skip to next or previous playlist				
Description:	0: Switches to the previous playlist entry. 1: Switches to the next playlist entry. **Announcements are omitted.** Example: The entry 1 playlist is playing. Entries 2 and 3 are configured as announcements. Entry 4 is not an announcement. You now switch to the next playlist entry: The contents of playlist entry 4 is playing.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
15 (Group 1) | 115 (Group 2) |... | 915 (Group 10)	Playlist selection	Write	1 byte	5,010	C-W--
Rubric:	Playlist	Data type:	Meter pulse (0 to 255)		
Function:	Group 1/2/.../10 – Starts playback of the selected playlist				
Description:	1..255 starts the playback of the selected playlist which has been configured on the device website. ► Configure playlists, p. 62 0 stops the music playback, cancels the source selection and empties the playback queue.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
16 (Group 1) | 116 (Group 2) |... | 916 (Group 10)	Current playlist	Read	1 byte	5,010	CR-T-
Rubric:	Playlist	Data type:	Meter pulse (0 to 255)		
Function:	Group 1/2/.../10 – Number of the currently selected playlist				
Description:	Supplies the number of the playlist entry in the current playlist. • 1-255: Entry number • 0: No playlist selected or playlist has not been saved **A source must be clearly identifiable.** If you use the same Sonos playlist more than once within a playlist, the number of the playlist entry cannot be clearly identified. A source is identified using its name and not based on the number of its playlist entry. If a source is now used in the playlist more than once, the system cannot distinguish which playlist entry has been activated. ➢ Always use a source only once within a master-slave group.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
17 (Group 1) | 117 (Group 2) |... | 917 (Group 10)	Random playback	Write	1 bit	1,003	C-W--
Rubric:	Playback mode	Data type:	Enable		
Function:	Group 1/2/.../10 – Plays the tracks on the current playlist in random order				
Description:	Activates (1) or stops (0) the random playback of tracks in the current playlist (shuffle mode). 0 = Order of the playlist 1 = Random order You can also configure random playback (<<Random function>> setting) in the playlist configuration on the device website.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
19 (Group 1) | 119 (Group 2) |... | 919 (Group 10)	Repeat all	Write	1 bit	1,003	C-W--
Rubric:	Playback mode	Data type:		Enable	
Function:	Group 1/2/...10 – Repeats all tracks on the current playlist				
Description:	Plays current Sonos playlist repeatedly any number of times. The first track in the Sonos playlist is automatically played again after the last track. 1: Activate repeat. 0: Deactivate repeat (stop).  You can also configure repeat mode (<<Repeat>> setting) in the playlist configuration on the device website.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
20 (Group 1) | 120 (Group 2) |... | 920 (Group 10)	Random playback mode state	Read	1 bit	1,003	CR-T-
Rubric:	Playback mode	Data type:		Enable	
Function:	Group 1/2/.../10 – Indicates whether playback occurs in a random order				
Description:	1 = Random order, 0 = Order of the playlist				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
22 (Group 1) | 122 (Group 2) |... | 922 (Group 10)	'Repeat all' playback mode state	Read	1 bit	1,003	CR-T-
Rubric:	Playback mode	Data type:	Enable		
Function:	Group 1/2/.../10 – Indicates whether all tracks on the current playlist are repeated				
Description:	0 = repeat off 1 = repeat on				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
23 (Group 1) | 123 (Group 2) |... | 923 (Group 10)	Song title	Read	14 bytes	16,001	CR-T-
Rubric:	Song	Data type:	Character (ISO 8859-1)		
Function:	Group 1/2/…/10 – Song title for the song currently being played				
Description:	Supplies the title of the current song as a 14-byte text. The ticker behaviour can be influenced by the parameter settings of the ETS.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
24 (Group 1) | 124 (Group 2) |... | 924 (Group 10)	Artist	Read	14 bytes	16,001	CR-T-
Rubric:	Song	Data type:	Character (ISO 8859-1)		
Function:	Group 1/2/…/10 – Artist name for the song currently being played				
Description:	Supplies the artist name for the current song as a 14-byte text. The ticker behaviour can be influenced by the parameter settings of the ETS.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
25 (Group 1) | 125 (Group 2) |... | 925 (Group 10)	Album	Read	14 bytes	16,001	CR-T-
Rubric:	Song	Data type:	Character (ISO 8859-1)		
Function:	Group 1/2/…/10 – Album title for the song currently being played				
Description:	Supplies the album title for the current song as a 14-byte text. The ticker behaviour can be influenced by the parameter settings of the ETS.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
26 (Group 1) | 126 (Group 2) |... | 926 (Group 10)	Playlist name	Read	14 bytes	16,001	CR-T-
Rubric:	Playlist	Data type:	Character (ISO 8859-1)		
Function:	Group 1/2/.../10 – Title of the selected playlist				
Description:	Supplies the clear text name of the playlist to which the currently selected track belongs as 14-character text. • Text from <<Empty list display text>> parameter: No playlist selected. • Text from <<Unsaved list display text>> parameter: Title does not belong to any playlist. A playlist is not detected until you have saved it.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
27 (Group 1) | 127 (Group 2) |... | 927 (Group 10)	Playback device connected	Read	1 bit	1,002	CR-T-
Rubric:	Connections	Data type:	Boolean		
Function:	Group 1/2/.../10 – Indicates a functioning connection to the playback device.				
Description:	Supplies information on whether the playback device was found on the network. 0 = Not found 1 = Found				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
28 (Group 1) | 128 (Group 2) |... | 928 (Group 10)	System status	Read	1 byte	20.*	CR-T-
Rubric:	Error diagnosis	Data type:			
Function:	Group 1/2/.../10 – Current status for communication with the playback device				
Description:	Supplies information on the last registered error as an error code: ► Table 16: Meaning of the error codes (values of communication object <<System status>> 28) and troubleshooting, p. 86				

Table 16: Meaning of the error codes (values of communication object <<System status>> 28) and troubleshooting

Code	Description	Troubleshooting
0	<<OK>> No error/success	-
2	<<network err>> UPnP network error (Sonos device not responding):	Probable causes: You have indicated the wrong IP address for a Sonos device in the ETS. Solution: Check ETS to see whether you have indicated the correct IP address. ► Determine IP addresses of the Sonos devices in the data network, p. 74
3	<<general err>> General UPnP protocol error	Sonos device responds with error or unexpected reply.
4	<<playlist>> Playlist is not available.	Cause: The playlist is not available for the playlist entry for the master-slave group playlist. Solution: 1. Check the Sonos software to see whether the indicated Sonos playlist still exists. 2. If the Sonos playlist exists, check the device website to see whether the source name is written correctly.
5	<<empty slot>> Empty playlist slot	Cause: There is no configuration available for the playlist entry for the master-slave group playlist. Solution: Check the playlist configuration on the device website.

Code	Description	Troubleshooting
6	<<PlayerIsSlave>>	Cause: The Sonos device is currently a slave and not a master. Solution: Use the <<Exit slave mode>> communication object, so that Sonos device can be controlled as a master again. If you then wish to use the Sonos device as a slave in another master-slave group, use the communication object <<Slave 1/2/3/4/5 – Switch group association>>.
7	<<PlayerIsInvis>> (Player is invisible)	Cause: The Sonos device is currently not visible in the Sonos software. This generally means that you have created a stereo pair with the Sonos software and have indicated the wrong IP address in the ETS. Within ETS, enter the IP address for the Sonos device which you have selected as the first device in the stereo pair in the Sonos software. Solution: Check ETS to see whether you have indicated the correct IP address for the first device. ► Case example: Handling stereo pairs in the ETS, p. 23
8	<<OpNotAvailable>> (Operation not available)	Cause: The current command cannot be executed due to logic reasons. Example: Radio is active and <<Repeat>> is to be switched on. The function is not available for the source "radio", so the command cannot be executed.

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
29 (Group 1) | 129 (Group 2) |... | 929 (Group 10)	System status	Read	14 bytes	16,001	CR-T-
Rubric:	Error diagnosis	Data type:	Character (ISO 8859-1)		
Function:	Group 1/2/.../10 – Current status as text for communication with the playback device				
Description:	Supplies information on the last registered error as a 14-byte text: You will find the description of error texts in the "Description" column in ► Table 16: Meaning of the error codes (values of communication object <<System status>> 28) and troubleshooting, p. 86.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
30 (Group 1) | 130 (Group 2) |... | 930 (Group 10)	Sonos group slave mode	Read	1 bit	1,001	CR-T-
Rubric:	Error diagnosis	Data type:	Switching		
Function:	Group 1/2/.../10 – Indicates whether the playback device is used as a slave in a Sonos group.				
Description:	Indicates whether the Sonos device is used as a slave in a group. 0 = is not a slave 1 = is a slave  All Sonos devices in a master-slave group, including their status, are displayed on the <<Device status>> page on the device website.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
31 (Group 1) | 131 (Group 2) |... | 931 (Group 10)	Leave slave mode	Write	1 bit	1,017	C-W--
Rubric:	Slave mode	Data type:	Trigger		
Function:	Group 1/2/.../10 – Playback device becomes master if connected to a Sonos group as a slave.				
Description:	Release Sonos device from the master-slave group and operate as a master device again.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
32 (Group 1) | 132 (Group 2) |... | 932 (Group 10)	Group volume control	Write	1 byte	5,001	C-W--
Rubric:	Group volume	Data type:	Percent (0 to 100%)		
Function:	Group 1/2.../10 – Set group volume (absolute)				
Description:	Enables setting of the group volume over the bus: 0 corresponds to 0% 255 to 100% volume				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
33 (Group 1) | 133 (Group 2) |... | 933 (Group 10)	Group volume state	Read	1 byte	5,001	CR-T-
Rubric:	Group volume	Data type:	Percent (0 to 100%)		
Function:	Group 1/2/.../10 – Current group volume				
Description:	Supplies the value of the group volume over the bus: 0 corresponds to 0% 255 to 100% volume				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
34 (Group 1) | 134 (Group 2) |... | 934 (Group 10)	Relative group volume control	Write	4 bit	3,007	C-W--
Rubric:	Group volume	Data type:	Dimmer step		
Function:	Group 1/2/.../10 – Increase or decrease group volume				
Description:	Enables the relative adjustment (louder/quieter) of the group volume over the bus. Suitable transmitters include push button sensors with the "Brighten/Dim" function, for example.				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
35 (Group 1) | 135 (Group 2) |... | 935 (Group 10)	Group volume control louder/quieter	Write	1 bit	1,007	C-W--
Rubric:	Group volume	Data type:	Step		
Function:	Group 1/2/.../10 – Increase or decrease group volume by 5%				
Description:	Enables relative adjustment (louder/quieter) to the group volume in increments up to 5% using 1-bit group telegrams: 0 = quieter by 5% 1 = louder by 5%				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
36 (Group 1) | 136 (Group 2) |... | 936 (Group 10)	Group muting	Write	1 bit	1,003	C-W--
Rubric:	Group volume	Data type:		Enable	
Function:	Group 1/2/.../10 – Mutes music playback of the group				
Description:	Group muting: Switches the loudspeakers of the group off (1) or on again (0).				

Object	Name	Direction	Data width	DP type	Flags (CRWTU)
37 (Group 1) | 137 (Group 2) |... | 937 (Group 10)	Group muting state	Read	1 bit	1,003	CR-T-
Rubric:	Group volume	Data type:		Enable	
Function:	Group 1/2/.../10 – Indicates whether all playback devices in this group are muted				
Description:	Supplies the group muting status: 0: At least one loudspeaker in the group is switched on. 1: All loudspeakers are switched off.				

11.2 KNX group objects for dynamic group creation

The ISE SMART CONNECT KNX SONOS supports dynamic group creation for Sonos devices. You can use the bus to influence the integration of individual slaves into a master-slave group using the group objects listed below.

Important information

- Up to five slaves can be parametrised per master to form a master-slave group (see ► <<Group <n>>> tab (define master-slave groups), p. 72) which can be dynamically assigned to the master as a slave using group objects/KNX group telegrams.
- The slaves in a master-slave Group are not automatically active: You need to switch the slaves individually using 1-bit group objects to the zone. This gives you even greater flexibility. For example, you can switch off the "Doorbell" announcement for the Sonos device in the child's room when they are taking an afternoon nap.
- The default volume control and status response are available for a master and each of its slave.
- The relative volume control for a master-slave group is implemented using the group volume.
- The connection status is saved to the Sonos system only. If the auxiliary voltage fails and then returns, the ISE SMART CONNECT KNX SONOS reads the connection status in the Sonos system again via UPnP.
- Automatic detection (master IP address 0.0.0.0) must not be parametrised, so that group support can be used.

You can use the ISE SMART CONNECT KNX SONOS to assign up to five slaves to a master-slave group. The slaves within the master-slave group have an offset of 10 each.

Example 5: Slave communication objects' offset

Master-slave group 1 Slave 1 Communication object number 40

➢ Communication object number slave 1 + offset 10 = master-slave group 1 slave 2 Communication object number is 50.

The following KNX group objects are available for group support:

Object	Name	Direction	Data width	DP type	Flags
40 (slave 1 – group 1) | 50 (slave 2 – group 1) | 60 (slave 3 – group 1) | 70 (slave 3 – group 1) | 80 (slave 5 – group 1) | 140 (slave 1 – group 2) | 150 (slave 2 – group 2) | |...| 180 (slave 5 – group 2) | The functionally identical communication objects in the master-slave groups (MSG) each have an offset of 100. The slaves within the MSG each have an offset of 10. 940 (slave 1 – group 10) | |...|	Slave 1/2/3/4/5 – Switch group association	Write	1 bit	1,001	C-W--

Rubric:	Slave zone control	Data type:	Switching
Function:	Group 1/2/.../10 – Add slave 1/2/3/4/5 to this master-slave group or remove it from there		
Description:	During the running time, you cannot simply add any Sonos device as a slave. You can only add those Sonos devices that you have defined as such in the <<Group <n>>> → <<Settings>> tab in the configuration for the master-slave group concerned. This definition thus indicates which particular Sonos devices can be potentially linked with the master. You activate the individual slaves with the communication object.		

Things to remember

A slave belongs to the master for which it was last activated.

If a Sonos device had the status "Master" before it was activated as a slave, it loses its status as a master.

A Sonos device remains a slave until you do the following:

- Remove "Slave" status using communication object <<Exit slave mode>>.
- Use communication object <<Slave 1/2/3/4/5 – Switch group association>> to switch the device to inactive as a slave to the indicated master.

- 0: Deactivate active slave.
- 1: Activate slave.

Object	Name	Direction	Data width	DP type	Flags
41 (slave 1 – group 1) | 51 (slave 2 – group 1) | 61 (slave 3 – group 1) | 71 (slave 3 – group 1) | 81 (slave 5 – group 1) | 141 (slave 1 – group 2) | 151 (slave 2 – group 2) | |...| 181 (slave 5 – group 2) | The functionally identical communication objects in the master-slave groups (MSG) each have an offset of 100. The slaves within the MSG each have an offset of 10. 941 (slave 1 – group 10) | |...|	Slave 1/2/3/4/5 – Group association	Read	1 bit	1,001	CR-T-

Rubric:	Slave zone control	Data type:	Switching
Function:	Group 1/2/.../10 – Indicates whether slave 1/2/3/4/5 has been added to this master-slave group		
Description:	Supplies information on whether the slave is linked to the master in a group (1) or not (0).		

Object	Name	Direction	Data width	DP type	Flags
42 (slave 1 – group 1) | 52 (slave 2 – group 1) | 62 (slave 3 – group 1) | 72 (slave 3 – group 1) | 82 (slave 5 – group 1) | 142 (slave 1 – group 2) | 152 (slave 2 – group 2) | |...| 182 (slave 5 – group 2) | The functionally identical communication objects in the master-slave groups (MSG) each have an offset of 100. The slaves within the MSG each have an offset of 10. 942 (slave 1 – group 10) | |...|	Slave 1/2/3/4/5 – Volume control	Write	1 byte	5,001	C-W--

Rubric:	Slave zone control	Data type:	Percent (0 to 100%)
Function:	Group 1/2/.../10 – Set volume of slave 1/2/3/4/5 (absolute)		
Description:	Enables the slave volume to be set over the bus: 0 corresponds to 0% 255 to 100% volume		

Object	Name	Direction	Data width	DP type	Flags
43 (slave 1 – group 1) | 53 (slave 2 – group 1) | 63 (slave 3 – group 1) | 73 (slave 3 – group 1) | 83 (slave 5 – group 1) | 143 (slave 1 – group 2) | 153 (slave 2 – group 2) | |...| 183 (slave 5 – group 2) | The functionally identical communication objects in the master-slave groups (MSG) each have an offset of 100. The slaves within the MSG each have an offset of 10. 943 (slave 1 – group 10) | |...|	Slave 1/2/3/4/5 – Volume state	Read	1 byte	5,001	CR-T-

Rubric:	Slave zone control	Data type:	Percent (0 to 100%)
Function:	Group 1/2/.../10 – Current volume of slave 1/2/3/4/5		
Description:	Supplies the volume value for the slave over the bus: 0 corresponds to 0% 255 to 100% volume		

Object	Name	Direction	Data width	DP type	Flags
44 (slave 1 – group 1) | 54 (slave 2 – group 1) | 64 (slave 3 – group 1) | 74 (slave 3 – group 1) | 84 (slave 5 – group 1) | 144 (slave 1 – group 2) | 154 (slave 2 – group 2) | |...| 184 (slave 5 – group 2) | The functionally identical communication objects in the master-slave groups (MSG) each have an offset of 100. The slaves within the MSG each have an offset of 10. 944 (slave 1 – group 10) | |...|	Slave 1/2/3/4/5 – Relative volume control	Write	4 bit	3,007	C-W--

Rubric:	Slave zone control	Data type:	Dimmer step

Function:	Group 1/2/.../10 – Increase or decrease volume of slave 1/2/3/4/5
Description:	Enables relative volume adjustment (louder/quieter) for the group over the bus. Suitable transmitters include push button sensors with the "Brighten/Dim" function, for example.

Object	Name	Direction	Data width	DP type	Flags
45 (slave 1 – group 1) | 55 (slave 2 – group 1) | 65 (slave 3 – group 1) | 75 (slave 3 – group 1) | 85 (slave 5 – group 1) | 145 (slave 1 – group 2) | 155 (slave 2 – group 2) | |...| 185 (slave 5 – group 2) | The functionally identical communication objects in the master-slave groups (MSG) each have an offset of 100. The slaves within the MSG each have an offset of 10. 945 (slave 1 – group 10) | |...|	Slave 1/2/3/4/5 – Volume control louder/quieter	Write	1 bit	1,007	C-W--

Rubric:	Slave zone control	Data type:	Step
Function:	Group 1/2/.../10 – Increase or decrease volume of slave 1/2/3/4/5 by 5%		
Description:	Enables relative volume adjustment (louder/quieter) for the group in increments up to 5% using 1-bit group telegrams: 0 = quieter by 5% 1 = louder by 5%		

Object	Name	Direction	Data width	DP type	Flags
46 (slave 1 – group 1) | 56 (slave 2 – group 1) | 66 (slave 3 – group 1) | 76 (slave 3 – group 1) | 86 (slave 5 – group 1) | 146 (slave 1 – group 2) | 156 (slave 2 – group 2) | |...| 186 (slave 5 – group 2) | The functionally identical communication objects in the master-slave groups (MSG) each have an offset of 100. The slaves within the MSG each have an offset of 10. 946 (slave 1 – group 10) | |...|	Slave 1/2/3/4/5 – Muting	Write	1 bit	1,003	C-W--

Rubric:	Slave zone control	Data type:	Enable
Function:	Group 1/2/.../10 – Mutes music playback of slave 1/2/3/4/5		
Description:	Slave muting: Switches the loudspeaker of the slave off (1) or on again (0).		

Object	Name	Direction	Data width	DP type	Flags
47 (slave 1 – group 1) | 57 (slave 2 – group 1) | 67 (slave 3 – group 1) | 77 (slave 3 – group 1) | 87 (slave 5 – group 1) | 147 (slave 1 – group 2) | 157 (slave 2 – group 2) | |...| 187 (slave 5 – group 2) | The functionally identical communication objects in the master-slave groups (MSG) each have an offset of 100. The slaves within the MSG each have an offset of 10. 947 (slave 1 – group 10) | |...|	Slave 1/2/3/4/5 – Muting state	Read	1 bit	1,003	CR-T-

Rubric:	Slave zone control	Data type:	Enable

Function:	Group 1/2/.../10 – Indicates whether slave 1/2/3/4/5 is muted
Description:	Supplies the slave muting status: 0: Loudspeaker is switched on. 1: Loudspeaker is switched off.

Object	Name	Direction	Data width	DP type	Flags
48 (slave 1 – group 1) | 58 (slave 2 – group 1) | 68 (slave 3 – group 1) | 78 (slave 3 – group 1) | 88 (slave 5 – group 1) | 148 (slave 1 – group 2) | 158 (slave 2 – group 2) | |...| 188 (slave 5 – group 2) | The functionally identical communication objects in the master-slave groups (MSG) each have an offset of 100. The slaves within the MSG each have an offset of 10. 948 (slave 1 – group 10) | |...|	Slave 1/2/3/4/5 – Playback device connected	Read	1 bit	1,002	CR-T-

Rubric:	Connections	Data type:	Boolean

Function:	Group 1/2/.../10 – Indicates a functioning connection to the playback device of slave 1/2/3/4/5
Description:	Supplies information on whether the playback device was found on the network. 1 = Found, 0 = Not found

12 Cleaning and maintenance

ISE SMART CONNECT KNX SONOS is maintenance-free.

If necessary, clean the device with a dry cloth.

IMPORTANT

Damage to the device due to incorrect opening

- ➢ Never open the housing.
- ➢ If you suspect that the device is damaged, contact our Support.
- ➢ We provide a warranty in accordance with statutory requirements. Please send the device back to us postage free with a detailed error description.

13 Troubleshooting

In order to be able to easily remedy a fault, you must establish the root cause. Solutions for typical configuration errors are described below.

- Check the status of the device on the devices website which is detailed on the <<Device status>> page.
  ► Checking the device status, p. 106
- Solutions for typical configuration errors: ► Table 17: Troubleshooting, p. 102.

Table 17: Troubleshooting

Issue	Troubleshooting
ETS	
ETS reports the error that it is not possible to write on a protected area when downloading the application program.	Please ensure that your ETS version is up to date. The ISE SMART CONNECT KNX SONOS requires the ETS in its current version 4 or 5. Ensure that the product database entry is suitable for the firmware ► Determining compatibility between the product database entry and firmware version, p. 60.
Device	
LEDs do not light up or flash individually or alternately or slowly.	Please check the KNX cabling and the LED status displays ► Reading off the device status using the LEDs, p. 49.
The device is not visible in the network.	Please check the network cabling and parametrisation of the device IP in the ETS ► Setting the IP address, IP subnet mask and standard gateway address, p. 55.
Device website – general	
The device website is not working.	Is the software restarting? • It can take up to three minutes until the website is available again after the ETS application program is downloaded. Try to reload the page after a few minutes. Is Javascript activated, and are cookies allowed? • The device website requires Javascript and cookies. Allow the execution of Javascript and the saving of cookies in the options of your web browser if necessary. Are you using an up-to-date, supported browser? • We support current market standard browsers such as Google Chrome, Microsoft Edge and Mozilla Firefox in their current versions as a minimum (as of the date this documentation was printed). Older versions of the browsers may work. However, we recommend that you keep your browser up to date for security reasons alone if nothing else.

Issue	Troubleshooting
Playlist configuration	
The <<Playlist assignment>> page is empty. <<The SonosApp is not active. Please use the ETS to configure the device.>> or <<The SonosApp is not active.>> messages are displayed.	Cause: The ISE SMART CONNECT KNX SONOS device has just been restarted. This is normal during the initialisation phase – After about two minutes, the device should display the correct state.
<<Playlist assignment>> page does not show any sources.	Cause: The <<Group <n>>> master cannot be reached or the configuration is incorrect. Solution: Check whether you have assigned the right IP address in the <<Group <n> – Master>> in the configuration in the <<Group <n>>> in the ETS.
Suggestions for source names are missing.	Cause 1: The maximum number of sources has been exceeded (currently max. 2,000 entries). Cause 2: The Sonos system has significantly more than 300 saved Sonos playlists or radio stations. Cause 3: Source does not exist. Even sources removed in the meantime can still be selected. Solution 1 + 2: If possible, delete any lists or radio stations you no longer require or contact Support, indicating the number of playlists and radio stations you use. Solution 3: Check whether the source still exists in the Sonos software. If it does, check whether this name matches the playlist configuration on the device website.
Music files on the microSD card are not shown in the Sonos software.	Cause: The Sonos devices have no access to authorisation. Solution: ► Reproduction from microSD card, p. 68.
On running time	
Control via KNX does not work.	Check the connection status on the <<Device status>> page on the device website. Causes: • IP address is unknown. • Assignment of the communication objects to the group addresses is incorrect. The Sonos devices must have a fixed IP address or, if DHCP is used, the IP must be linked to the MAC address.

Issue	Troubleshooting
Control via KNX no longer works after a period of time.	Cause: IP address is unknown. You use DHCP. If you are using DHCP for your Sonos devices, you must configure your router in such a way that the same IP address is always assigned to a Sonos device (fixed IP address). You have entered the IP addresses for the Sonos devices in the configuration for the master-slave groups. The IP address is used to identify the Sonos devices. If a Sonos device now receives a different IP address, it can no longer be addressed via the ISE SMART CONNECT KNX SONOS. Solution: Pair the assigned IP address with the MAC address of the Sonos device concerned. Please refer to your router's manual for information on how to configure this.
Radio station playback takes a very long time.	Cause: It takes a very long time to establish a connection with the radio server for some radio stations. This has nothing to do with the ISE SMART CONNECT KNX SONOS. Solution: You can check this delay by selecting the radio station directly in the official Sonos application. • Should the radio station not work at all, the URL may be invalid. Add the valid URL by selecting the menu item <<Manage>> → <<Add radio station>> in the Sonos software.
Playback commands no longer work on the KNX.	Cause: If the Sonos system has significantly more than 300 saved Sonos playlists or radio stations, the playback commands may not work on the KNX. Solution: If possible, delete any lists or radio stations you no longer require or contact Support, indicating the number of playlists and radio stations you use.
A Sonos device does not respond to commands such as send Play, Pause, Stop, Next track.	Cause: The device is configured as a slave. Only masters can be controlled comprehensively. ► Table 4: Overview of the differences between master and slave, p. 26  The <<Device status>> page on the device website shows whether a Sonos device is currently a slave or not. Solution: Adjust your configuration in the ETS.
Sonos device does not respond to any commands.	Causes: You have created a stereo pair with the Sonos software and have indicated the wrong IP address in the ETS. You need to enter the stereo pair's IP address within the ETS. This is the IP address of the Sonos device which you have designated the first device in the stereo pair in the Sonos software. Solution: Check ETS to see whether you have indicated the correct IP address for the first device. ► Determine IP addresses of the Sonos devices in the data network, p. 74

Issue	Troubleshooting
A slave does not respond to any commands.	Cause: Slave is deactivated. The definition of slaves in a master-slave group states which particular Sonos devices can be potentially linked with the master. Solution: Use communication object 40 <<Slave 1/2/3/4/5 – Switch group association>> to activate the required slave.
Radio/line-in can no longer be started with <<Play>> after a <<Stop>>.	This is not an error. The ISE SMART CONNECT KNX SONOS's group object <<Stop>> cancels the previously selected source. Solution: Use the group object <<Pause>> to keep the source selection.
Source type <<TV>> or << Line-in>> is not played. No available source is displayed if source type <<TV>> or << Line-in>> is selected.	Cause: In the case of source types <<TV>> and <<Line-in>>, only those Sonos devices (Sonos Playbar or Sonos Connect/Sonos Connect:Amp) which have been configured in a master-slave group are recognised as sources. It is not possible to playback unconfigured Sonos devices. Solution: When parametrising the KNX group, select a Sonos Playbar or Sonos Connect/Sonos Connect:Amp as a master if you wish to use their entry. Special characteristic for <<TV>>: If the source is played and the Sonos Playbar is not the master of the group, it automatically becomes the master.
<<Sonos playlist>> source is not played.	Cause: Source does not exist. Even sources removed in the meantime can still be selected. Solution: Check whether the source still exists in the Sonos software. If it does, check whether this name matches the playlist configuration on the device website. ► Table 13: Playlist configuration – settings on the <<Playlist assignment>> page, p. 63
Entry in playlist is ignored or omitted.	Cause: Announcements are omitted. You have used communication object 14 | 114, etc. to change to the next or previous entry within the playlist. In the process, entries are omitted for which the <<Announcement>> setting is defined. Solution: None. The mode of operation matches the required behaviour.
Incorrect entry is played.	Cause: Fallback in the event of a fault If playback doesn't work, because the Sonos playback queue is empty, the first playlist entry is selected as a fallback. Announcements are omitted, however, so a following playlist entry may be selected. Example: Playlist entries 1 and 2 are configured as announcements. Playlist entry 3 is not an announcement. The system wants to select the fallback playlist entry 1. but it is an announcement. The system tries playlist entry 2, but it is also an announcement. Playlist entry 3 is not an announcement and is played. Solution: None. The mode of operation matches the required behaviour.

Issue	Troubleshooting
Only the master plays music/an announcement.	Cause: Slaves are deactivated. The definition of slaves in a master-slave group states which particular Sonos devices can be potentially linked with the master. Solution: Use communication object 40 <<Slave 1/2/3/4/5 – Switch group association>> to activate the required slave.
Announcement is mute.	Cause: The interrupted source is muted and the <<Never mute>> has not been selected for the announcement. Solution: Select the <<Never mute>> setting in the playlist configuration for the announcement entry on the device website.
Playlists	
Playlist is not available: Error code 4 of communication object 28 << System status>> Error code <<playlist>> of communication object 29 << System status>>	The source name in the playlist configuration is not correct. Causes: • The name is written incorrectly. • Source no longer exists. Solution: Check whether the source still exists in the Sonos software. If it does, check whether this name matches the playlist configuration on the device website.
Playlist is not available: Error code 5 of communication object 28 << System status>> Error code <<empty slot>> of communication object 29 << System status>>	Cause: There is no configuration available for the number of the playlist entry for the master-slave group playlist. Solution: Check the playlist configuration on the device website.
No playlist is found or playlist cannot be played.	Cause: In rare cases, the ISE SMART CONNECT KNX SONOS may not be able to retrieve the playlists on your Sonos devices. This means that the playlist website does not offer playlists for selection. The selection of playlists also does not work via KNX. Solution: Have a Sonos device known to your ISE SMART CONNECT KNX SONOS play a playlist with an official Sonos application. In most cases, the website will be able to offer you all the playlists as expected after being reloaded. Playing via KNX will now work as well. We are working on a better solution to this problem which does not require the user to take any action.
A playlist can be selected in the Sonos app, but not via KNX.	Check whether the names of the playlist are identical in the ISE SMART CONNECT KNX SONOS and in the Sonos software (e.g. your app). Deviations can arise from renaming or a faulty entry.

13.1 Checking the device status

You can check the device status on the device website at any time on the <<Device status>> page.

The device website is not always updated automatically.

➢ Use your browser's function to perform an update (frequently button [F5]).

LEDs on the device also provide you with further information. The LEDs indicate problems via flashing combinations:

► LEDs when the device starts up, p. 51

► LEDs in operation, p. 52

13.2 Generating log files

Support uses log files to obtain information to help analyse your problem. You generate these log files via the device website and download them as a ZIP file.

The log files can contain information that varies in the amount of detail. You can configure this amount using the Logging mode.

Changing Logging mode

Requirement: The device website is open.

1. On the <<Device status>> page in the <<System configuration>> area, select the corresponding button for <<Logging mode>>

<<Simple>>	Basic information is collected.
<<Extended>>	Detailed information is collected.
	<<Extended>> logging mode has a negative influence on performance. Only activate this mode if Support requests the extended log files. Deactivate this mode again as soon as you have generated the log files.

2. Confirm the confirmation prompt.

Generating log files

Requirement: The device website is open.
If necessary, logging mode is configured if Support requires it.

1. Select <<System>> → <<Download log file>> in the menu bar.
   The log files are compiled and downloaded as a ZIP file.

13.3 Contacting Support

If you have a problem with your ISE SMART CONNECT KNX SONOS and require support, contact us:

- E-mail to support@ise.de
- Call us on tel.: +49 441 680 06 12
- Fax us: +49 441 680 06 15

We will need the following data in order to help you:

- ☐ To identify the device: Product name or order number
- ☐ MAC address (optional)
- ☐ Version of the firmware
- ☐ ETS version
- ☐ A meaningful error description including the error code (if there is one)

Gladly also:

- ☐ Log files
- ☐ Screenshot from the <<Device status>> page on the device website

13.4 FAQs

13.4.1 IP addresses

How do I find the IP address of a Sonos device?

1. Launch the Sonos software for PCs.
2. Select the <<About my Sonos system>> item in the Help menu.

A message will appear containing a list of your Sonos devices and their names and current IP addresses.

More information: ► Determine IP addresses of the Sonos devices in the data network, S. 74

How do I find out the IP address of my ISE SMART CONNECT KNX SONOS?

You can find more information at ► Device website: Calling up the start screen, p. 42.

Why can my Sonos device no longer be operated via KNX after a period of time?

If you are using DHCP for your Sonos devices, you must configure your router in such a way that the same IP address is always assigned to a Sonos device (fixed IP address).

You have entered the IP addresses for the Sonos devices in the configuration for the master-slave groups. The IP address is used to identify the Sonos devices. If a Sonos device now receives a different IP address, it can no longer be addressed via the ISE SMART CONNECT KNX SONOS.

Pair the assigned IP address with the MAC address of the Sonos device concerned.

Please refer to your router's manual for information on how to configure this.

13.4.2 Remote access

Can I open my ISE SMART CONNECT KNX SONOS's website using an ISE SMART CONNECT KNX REMOTE ACCESS?

Yes, these ise products are compatible with one another.

ISE SMART CONNECT KNX REMOTE ACCESS is a remote access solution which provides access to local device websites from any location wherever an Internet connection is available.

13.4.3 Music streaming services and sources

How can I integrate Spotify and Napster into my system?

1. Create suitable Sonos playlists with your Sonos software.
2. Then assign the Sonos Playlists in the playlist configuration on the device website.

More information: ► Configure playlists, S. 62

Can I still operate my Sonos devices with other apps, e.g. from my iPhone?

Yes. Using the ISE SMART CONNECT KNX SONOS does not limit operation of your Sonos devices. Changes such as those you make using your smartphone are forwarded to the KNX accordingly wherever possible.

Can I address sources other than *Sonos Playlists* and *My Radio Stations* via KNX?

Yes, in addition to *Sonos playlists* and *My Radio Stations*, *Line-in* inputs in the Sonos Connect series and the *TV* input in the Sonos Playbar can currently also be controlled via KNX. Music files on the microSD card are supported using the *Sonos Playlists*.

13.4.4 Behaviour in comparison to the Sonos software

Which Sonos software actions cannot be replicated with KNX or are not understood by KNX?

- Dynamic group creation with the Sonos software can only be reproduced to the extent that it can be mapped in the parametrisation of master-slave groups.

Why do my KNX operating devices not generate the normal response in my Sonos devices?

If the Sonos devices can be operated without any problems using the official Sonos application, please check your ISE SMART CONNECT KNX SONOS's LED display on the device to rule out a fault. ► LEDs in operation, p. 52

13.4.5 Updates

Are there software updates for my ISE SMART CONNECT KNX SONOS device?

You will find information on software updates in Chapter ► Functional enhancements from updates, p. 11.

Simply subscribe to our newsletter and you will be informed about current versions and new products regularly.

14 Disassembly and disposal

If you want to disassemble the device, e.g. due to a defect, proceed in reverse order to assembly.

Removing the cover cap

WARNING

Danger from incorrect use

Incorrect use can result in damage to the device, fire or other dangers.

- ➢ Only qualified electricians may install and mount electrical devices.
- ➢ Follow the instructions in this product manual.
- ➢ This product manual is part of the product and must remain with the customer.

WARNING

Danger of electric shock

An electric shock can result from touching live parts in the installation environment. Electric shock can cause death.

- ➢ Enable the device.
- ➢ Cover up live parts in the vicinity.

1. Gently press in the cover cap at the side (1).
2. Pull off the cover cap upwards (2).

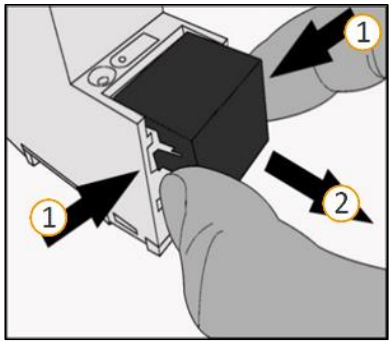


Figure 20: Removing the cover cap

Detach the device from the top-hat rail

Requirement: Power supply, bus line and network connection are disconnected.

1. Insert a screwdriver (1) into the release lever (2) and push the release lever down (3).
2. Take the device off the top-hat rail.

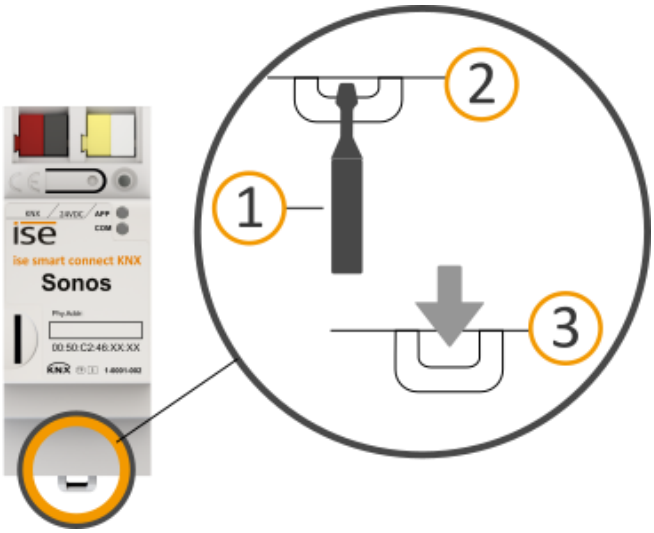


Figure 21: Detach the device from the top-hat rail

Disposal

Make an active contribution to protecting the environment by disposing of all materials in an environmentally responsible way.

PACKAGING AND BOX	
	Dispose of the packaging material appropriately, in a card, paper or plastic recycling bins.

DEVICE	
	**Old devices must not be disposed of with domestic refuse!** You can dispose of your old device free of charge at designated collection facilities or, if necessary, you can hand it in to your specialist dealer. Contact your local authority for recycling details.

15 Glossary

DP type, DPT

Data point type

ETS

The device is configured in the ETS (Engineering Tool Software). The ETS is available with various ranges of functions from the KNX Association (www.knx.org).

All descriptions in this documentation relating to commissioning in the ETS refer to the variant "ETS Professional" in the version 5.

Firmware

Software which is embedded on the device hardware and enables operation of the device. Functional enhancements for device are available from a newer version of the firmware.

Flags (CRWTU)

Every communication object has flags with which the communication object obtains methods: C: Communication, R: Read, W: Write, T: Transfer, U: Update. Refer to your KNX documents for the meaning of the flags.

Device website

Application for the device, with functions that make use more convenient. For example, updates can simply be imported or the status of the device can be checked. The slots for playlists are also configured here.

Group

The name "Group" can refer to different items. Look under the designations "Sonos group" and "Master-slave group" for details.

Group volume

The group volume affects all Sonos devices within the master-slave group in relation to their own individual volumes. It changes each peripheral's individual volume and thus uniformly adjusts the overall volume of the master-slave group.

Catalogue

Short for "Online KNX Product Catalogue". The catalogue is a product database. The catalogue contains all KNX-certified devices. The data is saved as a product database entry. The product database entry is often also called the "catalogue entry".

Master

Masters are "sound-setting" Sonos devices. Masters control themselves and their slaves. Only masters are able to "command" all functions.

Master-slave group (MSG)

A logical grouping of Sonos devices on the ISE SMART CONNECT KNX SONOS. Master-slave groups brings Sonos devices together, so that music can be played in all the master-slave group's rooms in synchronisation. If several rooms form part of a master-slave group, they behave as one room with regard to control.

Risk of confusion

The term "group addresses" commonly used in KNX has nothing to do with master-slave groups, Sonos groups or similar.

Music

Music is used to refer to all types of audio in this documentation. Obviously, you can also listen to other media, such as audio books with Sonos.

Playlist

Compilation of music. Playlists are configured on the device website. Various additional settings can be made for each entry within a playlist configured on the device website, such as random playback of tracks on a Sonos playlist. Playlists which are created within the Sonos software are called "Sonos playlists".

Product database entry

Data relating to a device in the "Online KNX Product Catalogue" of the ETS. The product database entry contains all data to allow the device to be configured in the ETS. The product database entry is provided by the devices' manufacturer in the form of a file. The latest version of product data entries of ise Individuelle Software und Elektronik GmbH can be downloaded free of charge from our website www.ise.de.

The product database entry is often also called the "catalogue entry".

Room/zone

A room (zone) is the area within which you listen to music with your Sonos devices. Multiple Sonos devices can also stream the music for a room/zone here. Different music cannot be listened to within a single room/zone.

Sonos uses the terms "room" and "zone" synonymously.

Repeat

You will find information on the "Play Sonos playlist repeatedly any number of times" function in this documentation under the search term "Repeat".

Slaves

Slaves are Sonos devices which can only be controlled to a limited extent. Slaves are dependent on their master. Slaves are assigned to a master in the ETS. Assignment is defined within what are known as master-slave groups. During running time, the defined slaves are activated or deactivated as required.

Sonos device

Each Sonos wireless loudspeaker is referred to as a Sonos device in this documentation.

Sonos group

Several Sonos devices grouped in the Sonos software to ensure that their music is played in synchronisation.

Stereo pair

Two Sonos devices grouped in the Sonos software to ensure that their music is played in synchronisation. A stereo pair is a special Sonos group. What makes a stereo pair special is that the one Sonos device acts as a left-hand audio channel and the other as the right-hand one. These devices are permanently linked to one another. The Sonos software and the ISE SMART CONNECT KNX SONOS regard a stereo pair as a single (1) "visible" Sonos device. Within the ETS, only enter the IP address for the Sonos device which you have assigned as the first device to the stereo pair in the Sonos software.

Updates

You will find information on new versions of the firmware in this documentation under the search term "Update".

Playlist

Compilation of music. You will find information on the playlists configured on the website in this documentation under the search term "Playlist". Playlists which are created within the Sonos software are called "Sonos playlists".

Website

Information on the device's application can be found in this documentation under the search term "Device website".

Zone

Information on "Zone" section can be found in this documentation under the search term "Room".

16 ISE SMART CONNECT KNX SONOS Software licence agreement

Hereinafter are the contract terms for your use of the software as the "Licensee".

On accepting this agreement and installing the ISE SMART CONNECT KNX SONOS software or putting the ISE SMART CONNECT KNX SONOS into use, you conclude an agreement with ise Individuelle Software und Elektronik GmbH and agree to abide by the terms in this agreement.

16.1 Definitions

Licensor: ise Individuelle Software und Elektronik GmbH, Oldenburg (Oldb), Osterstraße 15, Deutschland

Licensee: The legal recipient of the ISE SMART CONNECT KNX SONOS software.

Firmware: Software which is embedded on the ISE SMART CONNECT KNX SONOS hardware and enables the ISE SMART CONNECT KNX SONOS to operate.

ISE SMART CONNECT KNX SONOS: The ISE SMART CONNECT KNX SONOS software designates all of the software provided for the ISE SMART CONNECT KNX SONOS product, including the operating data. This includes, in particular, the firmware and the product database.

16.2 Object of the agreement

The object of this agreement is the ISE SMART CONNECT KNX SONOS software provided on data media or through downloads, and the corresponding documentation in written and electronic format.

16.3 Rights of use of the ISE SMART CONNECT KNX SONOS software

The licensor grants the licensee the non-exclusive, non-transferable right to use the ISE SMART CONNECT KNX SONOS software for an unlimited time in accordance with the following conditions for the purposes and applications specified in the valid version of the documentation (which shall be provided in printed format or also as online help or online documentation).

The Licensee is obliged to ensure that each person who uses the program only does so as part of this license agreement and observes this license agreement.

16.4 Restriction of rights of use

16.4.1 Copying, modification and transmission

The licensee is not authorised to use, copy, modify or transfer the ISE SMART CONNECT KNX SONOS software in whole or in part in any way other than as described herein. Excluded from this is one (1) copy produced by the Licensee exclusively for archiving and backup purposes.

16.4.2 Reverse engineering and conversion technologies

The licensee is not authorised to apply reverse-engineering techniques to the ISE SMART CONNECT KNX SONOS software or to convert the ISE SMART CONNECT KNX SONOS software into another type. Such techniques include, in particular, disassembly (conversion of the binary-coded computer instructions of an execut-

able program into an assembler language which can be read by humans) or decompilation (conversion of binary-coded computer instructions or assembler instructions into source code in the form of high-level language instructions).

16.4.3 Firmware and hardware

The firmware may only be installed and used on the hardware (ISE SMART CONNECT KNX SONOS) approved by the licensor.

16.4.4 Transfer to a third party

The ISE SMART CONNECT KNX SONOS software must not be passed on to third parties, nor may it be made accessible to third parties.

16.4.5 Renting out, leasing out and sub-licensing

The licensee is not authorised to rent or lease the ISE SMART CONNECT KNX SONOS software or grant sub-licenses to the program.

16.4.6 Software creation

The licensee requires written approval from the licensor to create and distribute software which is derived from the ISE SMART CONNECT KNX SONOS software.

16.4.7 The mechanisms of license management and copy protection

The mechanisms of the license management and copying protection of the ISE SMART CONNECT KNX SONOS software must not be analysed, published, circumvented or disabled.

16.5 Ownership, confidentiality

16.5.1 Documentation

The ISE SMART CONNECT KNX SONOS software and its documentation (which shall be provided in printed format or also as online help or online documentation) are business secrets of the licensor and/or the object of copyright and/or other rights and shall continue to belong to the licensor. The Licensee shall observe these rights.

16.5.2 Transfer to a third party

Neither the software nor the data backup copy nor the documentation (which shall be provided in printed format or also as online help or online documentation) may be passed on to third parties at any point in time, in whole or in part, for a fee or free of charge.

16.6 Changes, additional deliveries

The ISE SMART CONNECT KNX SONOS software and the documentation (which shall be provided in printed format or additionally as online help or online documentation) shall be subject to possible changes by the licensor.

16.7 Warranty

The ISE SMART CONNECT KNX SONOS software works together with software from third parties. No warranty is provided for software from third parties. See ► Open Source Software, p. 119 for more information.

16.7.1 Software and documentation

The ISE SMART CONNECT KNX SONOS software and its documentation (which shall be provided in printed format or additionally as online help or online documentation) shall be provided to the licensee in the respective valid version. The warranty period for the ISE SMART CONNECT KNX SONOS software is twenty-four (24) months. The licensor shall provide the following warranty during this time:

- The software shall be free of material and manufacturing defects when turned over to the customer.
- The software shall function as described in the documentation enclosed with it in its respective valid version.
- The software shall be executable on the computer stations specified by the licensor.

The warranty shall be fulfilled with the supply of spare parts.

16.7.2 Limitation of warranty

In other respects, no warranty shall be provided for the freedom from errors for the ISE SMART CONNECT KNX SONOS software and its data structures. Nor does the warranty cover defects due to improper use or other causes outside the influence of the Licensor. Any additional warranty claims shall be excluded.

16.8 Liability

The Licensor shall not be liable for damages due to loss of profit, data loss or any other financial loss resulting as part of the use of the ISE SMART CONNECT KNX SONOS software, even if the Licensor is aware of the possibility of damage of that type.

This limitation of liability is valid for all the Licensee's damage claims, regardless of the legal basis. In any case, liability is limited to the purchase price of the product.

The exclusion of liability does not apply to damage caused by premeditation or gross negligence on the part of the Licensor. Furthermore, claims based on the statutory regulations for product liability shall remain intact.

16.9 Applicable law

This agreement is subject to the laws of the Federal Republic of Germany.

It is subject to the jurisdiction of courts in Oldenburg (Oldb).

16.10 Termination

This agreement and the rights granted herein shall end if the Licensee fails to fulfil one or more provisions of this agreement or terminates this agreement in writing. The supplied ISE SMART CONNECT KNX SONOS software and its documentation (which is provided in printed format or also as online help or online documentation), including all copies, shall be returned immediately in such a case without the licensor specifically requesting their return. No claim to reimbursement of the price paid shall be accepted in such a case.

The license to use the ISE SMART CONNECT KNX SONOS software shall expire upon termination of the agreement. The ISE SMART CONNECT KNX SONOS product must be taken out of operation in such a case. Further use of the ISE SMART CONNECT KNX SONOS without a license is precluded.

The commissioning software and visualisation software must be uninstalled and all copies must be destroyed or returned to the licensor.

16.11 Subsidiary agreements and changes to the agreement

Subsidiary agreements and changes to the agreement shall only be valid in writing.

16.12 Exception

All rights not expressly mentioned in this agreement are reserved.

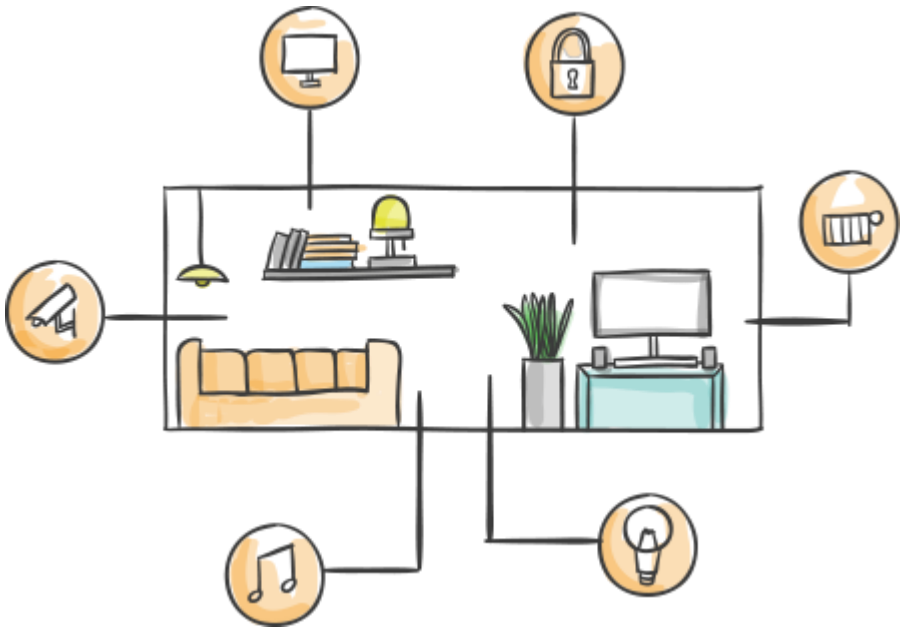
17 Open Source Software

This product uses software from third-party sources which are published within the framework of various Open Source licenses.

The individual software packages used and their licenses are listed and described on the device website for this product under System/Licenses.

The source code for the Open Source software used in this product can be obtained by e-mailing support@ise.de.

This offer is valid for 3 years after the discontinuation of the service for this product.



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