

Technical manual

Application Description – Audio Interface

General description:



The device fits for the particular use of the following tasks:

To play a programmed melody over an external loudspeaker.

The audio interface has 12 predefined melodies + 6 places for individual MP3 files.

The predefined melodies can be listened to on the homepage:

<https://www.hugo-mueller.de/en/products/connect-knx/knx-tp-products/audio-interfaces/chime-interface-as-26x1-knx/#downloads>

Application program

Manufacturer:

Hugo Müller GmbH & Co KG
Karlstraße 90
D-78054 VS-Schwenningen, Germany

Application program name:

[AS 36.x3 knx] chime interface

Installation:

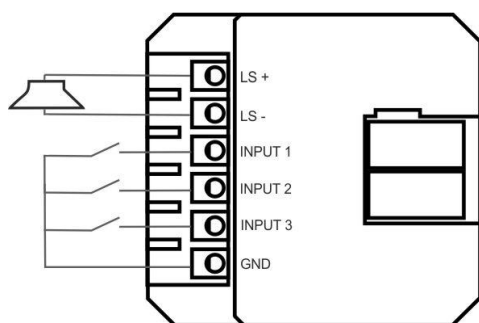
Add the device to your device list and open a new project. You can download the ETS database on our webpage:

<http://www.hugo-mueller.de/en/downloads/knx-product-database/>

Technical Specifications

Supply voltage	via KNX bus voltage
Bus current	< 12 mA without output signal < 20 mA with output signal
Bus system	KNX
Input	3 binary inputs
Output	1 speaker output
Volume level	11 volume steps
Speaker output	max. 0,45 W
Impedence ext. speaker	4-8 Ohm
Melodies	12 preset tones 6 places for individual MP3 files
Application software	ETS5
Permitted ambient temperature	-10...45 °C
Housing	self-extinguishing thermoplastic
Dimensions AS36.03 knx	44x41,5x20 mm
Dimensions loudspeaker	∅ 60 mm incl. mounting ring
Mounting	flush-mounting
Type of connection	KNX-Connector Screw-type terminals (for in-/outputs)
Type of protection	IP20 according to DIN EN 60529
Class of protection	III when installed according to regulations

Connection picture



Information on KNX secure

KNX Secure – Data Security in Building Automation

As data protection and IT security requirements continue to rise, the protection of KNX installations is becoming increasingly important. To prevent manipulation and unauthorized access, the KNX Secure security concept was introduced. It includes two standards: KNX IP Secure for communication over IP networks, and KNX Data Secure for traditional media such as Twisted Pair (TP) or radio frequency (RF).

For push-button sensors with a direct bus connection, KNX Data Secure is the relevant standard.

Purpose of KNX Data Secure

KNX Data Secure specifically protects communication at the object level – such as when switching lights, changing setpoints, or controlling scenes. This is achieved through:

- Encryption of transmitted telegrams
- Authentication of the data source
- Protection against manipulation and eavesdropping

All communication objects that are encrypted are marked in the ETS with a corresponding symbol.

Integration in ETS

As of ETS version 5.5, KNX Secure can be integrated into projects. When a KNX Secure-capable device is added to a project, ETS prompts for a project password.

If no password is entered, the device is operated in a standard, unsecured mode. The password can also be added later.

Device Activation with FDSK

For secure commissioning, the so-called Factory Device Setup Key (FDSK) is required. This unique key is printed on the device label.

Once entered into ETS, it generates a tool-specific key that is then securely transferred to the device via the bus.



Neither the FDSK nor the tool key are transmitted in plain text. Once the transfer is complete, the device will only accept the **tool key** for project configuration. The FDSK is only required again if the device is reset to factory settings.

Project Configuration and Object Protection

The ETS allows targeted selection of communication objects to be transmitted securely. Depending on the application, for example, only the communication of sensitive control commands can be encrypted, while less critical objects remain unencrypted. This fine-grained selection enables an individual balance between security and bus load.

Operation Without Secure

Devices with KNX Secure functionality can optionally be operated without encryption. In this case, they behave like conventional KNX components.

To do this, secure commissioning must be deactivated in the ETS.

Parameter overview

Parameter description

Activation objects

Settings

Activation objects:

Here the activation objects are selected and the number is set. There is a maximum of 10 objects.

The priority looks like that:

A > B > C > D > E > F > G > H > I > J

Example:

- Object B is active
- Now object A is activated
- Object B stops and object A starts
- To start the object B, the object A needs to be stopped and object A activated again.

Activation objects	☐ disabled ☒ enabled
Number of activation objects	1

Activation object A: *[description]*

Description:

You can write a description/name for the activation object. That will also be taken for the communication objects and in the parameter overview.

Description	Door bell
 9	Volume activation object A: Door bell
	Input
Activation object A: Door bell	

Activate condition:

The object can be activated with a "0" or a "1" (default)

Activate condition	☐ active by '0' ☒ active by '1'
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Tone selection:

There are 12 pre-defined tones selectable. You can test them on our homepage:

<https://www.hugo-mueller.de/en/products/connect-knx/audio-interfaces/audio-interface-as-36x3-knx/#downloads>

There is also the possibility to play 6 individual MP3 files.

Thus, up to 18 melodies can be played.

(Places 1-12 predefined melodies / places 13-18 individual Mp3 files).

Description	
Activate condition	☐ active by '0' ☒ active by '1'
Tone selection	tone 1 (alarm 1) ▼
Volume	tone 1 (alarm 1) ✓
Permanent activation	tone 2 (alarm 2)
Number of cycles (1...100)	tone 3 (carillon)
Blocking object	tone 4 (table bell)
Volume adjustable by object	tone 5 (school chime)
Day-/ Night operation	tone 6 (telephone)
Operation condition	tone 7 (door bell 1)
In night operation	tone 8 (door bell 2)
Volume behaviour	tone 9 (door bell 3)
Reduce	tone 10 (door bell 4)
	tone 11 (door bell 5)
	tone 12 (alarm clock)
	tone 13 (ETS DCA App Song 1)
	tone 14 (ETS DCA App Song 2)
	tone 15 (ETS DCA App Song 3)
	tone 16 (ETS DCA App Song 4)
	tone 17 (ETS DCA App Song 5)
	tone 18 (ETS DCA App Song 6)

Volume:

The volume can be adjusted in 11 steps. At the step „min“ there is still a minimum sound hearable.

Min 1 2 3 4 5 6 7 8 9 Max

Volume	Max ▼
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Insert Mp3 files:

It is possible to load up to 6 individual MP3 files to the device. For this, a place with the description DCA APP song xx is selected.

Description

Activate condition

☐ active by '0'
 ☒ active by '1'

Tone selection

tone 13 (ETS DCA App Song 1)

Volume

8

Permanent activation

☒ disabled
 ☐ enabled

Number of cycles (1...100)

1

Blocking object

☐ disabled
 ☒ enabled

Volume adjustable by object

☐ disabled
 ☒ enabled

Day-/ Night operation

☐ disabled
 ☒ enabled

Operation condition

☒ day = '1' / night = '0'
 ☐ day = '0' / night = '1'

In night operation

Volume behaviour

☐ increase
 ☒ reduce

Reduce

1

To get the MP3 file on the audio interface an app is necessary. You can find it on our Homepage:

<https://www.hugo-mueller.de/en/products/connect-knx/audio-interfaces/audio-interface-as-36x3-knx/#downloads>

this app must now be installed in the ets

Apps + 				1 active / 10 installed
Name	Vendor	Version	License	
☒ AS36 MP3 Update App	Hugo Müller GmbH & Co. KG	1.0.0.0		
☐ Compatibility Mode App	KNX Association	5.7.1398.39605		
☐ Device Compare	KNX Association	5.7.1398.39605		
☐ Device Templates	KNX Association	5.7.1398.39605		
☐ EIBlib/IP	KNX Association	5.7.1398.39605		
☐ Extended Copy	KNX Association	5.7.1398.39605		
☐ Labels	KNX Association	5.7.1398.39605		
☐ Project Tracing	KNX Association	5.7.1398.39605		
☐ Replace Device	KNX Association	5.7.1398.39605		
☐ Split and Merge	KNX Association	5.7.1398.39605		

Now next to the parameters DCA is shown:

Group Objects

Channels

Parameters

DCA

To upload a file, select a place and search for the file. Then click Start Song Download to start the download. Please note the maximum file size noted to the right of each song + number.

	Song 17 (max 160k...	0kB	empty
	Song 18 (max 160k...	0kB	empty

Start Song Download

Version: 1.0.0.1

Attention!!

The audio interface can output songs up to a certain volume. If this volume is exceeded, the amplifier switches off to avoid a defect. Therefore, the following procedure should be followed:

1. the MP3 file should be normalized before downloading, this is an increase in amplitude to achieve the maximum volume. (Tools e.g. Audacity or mp3gain)

If the volume is now too loud and the amplifier switches off directly, it is recommended to either reduce the volume using MP3 Tool and then download again via the ETS DCA APP or regulate the volume using ETS down.

While downloading a song in the DCA app, the window must remain open to prevent interruption of the download. If this happens, the device must be completely unloaded and reprogrammed via the ETS.

To achieve the shortest possible transfer time, it is recommended to program the interface as a stand-alone device, since the duration of the transfer can be considerable depending on the bus load.

Permanent activation & number of cycles:

A permanent activation can be selected. Then it's only possible to stop it with a deactivation of the object or start a higher prioritized object.

If a permanent activation is not needed then a number of cycles need to be selected.

Permanent activation

☒ disabled
 ☐ enabled

Number of cycles (1...100)

1

Blocking object:

A communication object - "Blocking object" can be made available for the specific activation object. Disable objects and day / night objects are saved. These must be actively deleted again by deactivating.

Blocking object

☐ disabled
 ☒ enabled

 8 Blocking object activation object A:

Volume changeable via object:

A communication object can change the volume if that function is active.

Note:

That object is set in %. The value will be rounded up or down. e.g.

4% -> Min. Step / 5% -> 1. Step / 14% -> 1. Step / 16% -> 2. Step / 95% -> Max.

Volume adjustable by object	☐ disabled	☒ enabled
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Day- / Night operation:

With the object 6: “Day-/Night operation” a day or night operation can be simulated. You can select an increase or decrease of the global volume. That setting affects all activation types! You need to select the increase/decrease step of the volume.

Note: At a maximum decrease of the volume there is still a minimum tone hearable. For example: If the volume is set on “5” and the night decrease is “6” then the value is on “min”.

For a stop of the sound output you need to deactivate the activation object or mute it for a certain time.

Day-/ Night operation	☐ disabled	☒ enabled
Operation condition	☒ day = '1' / night = '0'	☐ day = '0' / night = '1'
In night operation		
Volume behaviour	☒ reduce	☐ increase
Reduce	1	

Scenes

Settings

Scene activation

Here you select the activation via scenes and set the needed amount of scenes. It's possible to choose up until 16 scenes.

Note: The activation objects have a higher priority than the scenes!

Scene activation	☐ disabled ☒ enabled
Number of scenes	16

Scene A: [description]

Description:

You can write a description/name for the scene.

Description	Door bell
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Scene number:

A scene number need to be selected.

Note: In case of duplicated scene numbers, only the first one will be activated!

Example:

Scene 1 and 2 both have scene number 1 Scene 1 is always executed, scene 2 never!

Scene number	1
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Tone selection:

There are 12 pre-defined tones selectable. You can test them on our homepage:

<https://www.hugo-mueller.de/produkte/vernetzen-knx/knx-tp-produkte/audio-schnittstellen/gong-schnittstelle-as-26x1-knx/#downloads>

Tone selection	tone 1 (alarm 1)
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There is also the possibility to play 6 individual MP3 files.

Volume:

The volume can be adjusted in 11 steps. At the step „min“ there is still a minimum sound hearable.

Min 1 2 3 4 5 6 7 8 9 Max

Volume	Max
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Permanent activation & number of cycles:

You can set a permanent activation of the device. The tone can only be deactivated with the start of a second scene and the function "Stop permanent device activation". If a permanent activation is not needed then a number of cycles need to be selected.

Stop permanent device activation	☒ disabled ☐ enabled
Permanent activation	☒ disabled ☐ enabled
Number of cycles (1...100)	1

External input**General****Limit number of telegrams:**

To limit the data transfer on the bus the telegrams can be limited.

Limit number of telegrams	☐ inactive ☒ active
Maximum number of sent telegrams	20
Maximum number of sent telegrams per	1 second

Input 1 General**Designation:**

A designation can be assigned to the input.

Designation	pushbutton
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Function:

The binary input can be activated here.

Function	☐ inactive ☒ Binary Input
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Binary Input:

The function at the binary input can be selected and parameterized accordingly. For this purpose, a distinction is made between scene and multiple actuation.

Designation	pushbutton
Function	☐ inactive ☒ Binary Input
Binary function	☐ Scene ☒ Multiple operation

Input 1 Scene control

If scene control is used, the input can be parameterized accordingly. In addition, the scene number and the debounce time can be set. A blocking object can also be activated.

Input is being actuated	☒ closed ☐ opened
Scene number at actuation	1
Save scene	at long actuation and object value = 1
Long actuation from ... s	3
Debouncing time ... ms	50
Enable object 'Disable'	☐ inactive ☒ active

Input 1 Multiple actuation

Input 1 on actuation

If multiple actuation is activated, the input can be parameterized. It is important to note when the input is to be recognized as active. Either in the closed state (e.g. when a button is pressed) or in the open state (e.g. when the button is released).

Input is being actuated	☒ closed ☐ opened
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Setting the scanning frequency

The debounce time can be set between 10 and 150 ms. In addition, up to 4 actuations can be processed, which in turn can be set with a maximum time between two actuations and an additional object for a long actuation. This time can be set between 0.3 and 10 seconds, and the value sent can be selected between off / on and toggle.

Debouncing time ... ms	50
Max. number of actuations	4
Sent value	switchover
Maximum time between two actuations ... s	0,5
Additional object for long actuation	☐ inactive ☒ active
Long actuation from ... s	0,4
Sent value at long actuation	off
Enable object 'Disable'	☐ inactive ☒ active

Blocking Object

A communication object - "blocking object" can be made available for the specific activation object.

Communication objects

Object number	Object name	Object function	Object size	Flag* C - R - W - T - U	Data Type
2	Send in operation	Output	1 bit	--CT--	DPT switch
3	Request status	Input	1 bit	-WC---	DPT trigger
4	Mute function	Input	1 bit	-WC---	DPT switch
5	Global blocking object	Input	1 bit	-WC---	DPT enable
7	Activation object A:	Input	1 bit	-WC---	DPT switch
8	Blocking object activation object A:	Input	1 bit	-WC---	DPT enable
9	Volume activation object A:	Input	1 Byte	-WC---	DPT percent (0-100%)
10	Day/night operation Activation object A	Input	1 bit	-WC---	DPT switch
11	Activation object B:	Input	1 bit	-WC---	DPT switch
12	Blocking object activation object B:	Input	1 bit	-WC---	DPT enable
13	Volume activation object B:	Input	1 Byte	-WC---	DPT percent (0-100%)
14	Day/night operation Activation object B	Input	1 bit	-WC---	DPT switch
15	Activation object C:	Input	1 bit	-WC---	DPT switch
16	Blocking object activation object C:	Input	1 bit	-WC---	DPT enable
17	Volume activation object C:	Input	1 Byte	-WC---	DPT percent (0-100%)
18	Day/night operation Activation object C	Input	1 bit	-WC---	DPT switch
19	Activation object D:	Input	1 bit	-WC---	DPT switch
20	Blocking object activation object D:	Input	1 bit	-WC---	DPT enable
21	Volume activation object D:	Input	1 Byte	-WC---	DPT percent (0-100%)
22	Day/night operation Activation object D	Input	1 bit	-WC---	DPT switch
23	Activation object E:	Input	1 bit	-WC---	DPT switch
24	Blocking object activation object E:	Input	1 bit	-WC---	DPT enable
25	Volume activation object E:	Input	1 Byte	-WC---	DPT enable
26	Day/night operation Activation object E	Input	1 bit	-WC---	DPT switch
27	Activation object F:	Input	1 bit	-WC---	DPT switch

28	Blocking object activation object F:	Input	1 bit	-WC---	DPT enable
29	Volume activation object F:	Input	1 Byte	-WC---	DPT switch
30	Day/night operation Activation object F	Input	1 bit	-WC---	DPT switch
31	Activation object G:	Input	1 bit	-WC---	DPT switch
32	Blocking object activation object G:	Input	1 bit	-WC---	DPT enable
33	Volume activation object G:	Input	1 Byte	-WC---	DPT percent (0-100%)
34	Day/night operation Activation object G	Input	1 bit	-WC---	DPT switch
35	Activation object H:	Input	1 bit	-WC---	DPT switch
36	Blocking object activation object H:	Input	1 bit	-WC---	DPT enable
37	Volume activation object H:	Input	1 Byte	-WC---	DPT percent (0-100%)
38	Day/night operation Activation object H	Input	1 bit	-WC---	DPT switch
39	Activation object I:	Input	1 bit	-WC---	DPT switch
40	Blocking object activation object, I:	Input	1 bit	-WC---	DPT enable
41	Volume activation object I:	Input	1 Byte	-WC---	DPT enable
42	Day/night operation Activation object I	Input	1 bit	-WC---	DPT switch
43	Activation object J:	Input	1 bit	-WC---	DPT switch
44	Blocking object activation object J:	Input	1 bit	-WC---	DPT enable
45	Volume activation object J:	Input	1 Byte	-WC---	DPT percent (0-100%)
46	Day/night operation Activation object J	Input	1 bit	-WC---	DPT switch
47	Scene chime interface	Input	1 Byte	-WC---	DPT Scene number
80	E1 scene	Output	1 bit	-WCT--	DPT scene
84	E1 save scene	Output	1 bit	-WCT--	DPT enable
82	E1 Scene storage display	Input	1 bit	-WC---	DPT enable
98	E1 blocking object:	Input	1 bit	-WC---	DPT enable
80	E1 switching 1 actuation	Output	1 bit	-WCT--	DPT switch
81	E1 switching 2 actuations	Output	1 bit	-WCT--	DPT switch
82	E1 switching 3 actuations	Output	1 bit	-WCT--	DPT switch
83	E1 switching 4 actuations	Output	1 bit	-WCT--	DPT switch

84	E1 Switching long operation	Output	1 bit	-WCT--	DPT switch
98	E1 blocking object:	Input	1 bit	-WC---	DPT enable
100	E2 Scene	Output	1 bit	-WCT--	DPT scene number
104	E2 save scene	Input	1 bit	-WCT--	DPT enable
102	E2 Scene storage display	Input	1 bit	-WCT--	DPT enable
118	E2 blocking object:	Output	1 bit	-WCT--	DPT enable
100	E2 switching 1 actuation	Output	1 bit	-WCT--	DPT switch
101	E2 switching 2 actuations	Output	1 bit	-WCT--	DPT switch
102	E2 switching 3 actuations	Output	1 bit	-WCT--	DPT switch
103	E2 switching 4 actuations	Output	1 bit	-WCT--	DPT switch
104	E2 Switching long operation	Output	1 bit	-WCT--	DPT switch
118	E2 blocking object:	Output	1 bit	-WCT--	DPT enable
120	E3 Scene	Output	1 Byte	-WCT--	DPT scene number
124	E3 save scene	Input	1 bit	-WCT--	DPT enable
124	E3 Release save	Output	1 bit	-WCT--	DPT enable
122	E3 Scene storage display	Output	1 bit	-WCT--	DPT enable
138	E3 blocking object:	Input	1 bit	-WCT--	DPT enable
120	E3 switching 1 actuation	Output	1 bit	-WCT--	DPT switch
121	E3 switching 2 actuations	Output	1 bit	-WCT--	DPT switch
122	E3 switching 3 actuations	Output	1 bit	-WCT--	DPT switch
123	E3 switching 4 actuations	Output	1 bit	-WCT--	DPT switch
138	E3 blocking object	Input	1 bit	-WCT--	DPT enable

*Flag	Name	Meaning
C	Communication	Object can communicate
R	Read	Object status can be requested (ETS, display etc.)
W	Write	Object can receive information
T	Transmit	Object can send information
U	Update	Object can request a value from another bus participant. The answer is interpreted as write command and updates the value of the communication object. This is typically used to request external sensor data after a bus voltage recovery.