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DUO**DMX** GATEWAY documentation

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TABLE OF CONTENT

Table of Figures

1 INTRODUCTION

DMX (Digital Multiplex) is a handling protocol used for event technology, so it is robust, fail-safe and built up simply. The standard as of today exists since 1990 and due to its wide spread distribution it offers a lot of functionalities by low asset costs.

The DUO**DMX** GATEWAY has two independently configurable DMX outputs, each with 512 channels. This enables two rooms to be controlled independently of one another. The device can be operated as a DMX master or slave. The gateway transmits DMX packages in master mode and receives them in slave mode. Five different versions enable the device to be used in almost any scenario of requirements. The device acts as a DMX gateway for KNX® or EnOcean® systems, but can also be operated on a standalone basis – in other words, directly addressed, e.g. via the browser of your smart phone. The professional configuration software not only enables the dimming of individual channels, but also the programming of complex sequences. The DUO**DMX** GATEWAY is ideally suited for concealed retrofitting in ceilings. A corresponding adapter is available for top hat rail installation.

2 THE GATEWAY

The DUO**DMX** GATEWAY is laid out for ceiling installation. Due to its compact measures it can be used for complicated mounting lays too. The device has two separate DMX interfaces and controls these independently of one another

Specifications:

Power Supply:
- Power over Ethernet (PoE) or   (RJ-45)
- connection clamp: 12-30V DC
- Power consumption: <= 1,2VA

Mechanic Data:
- Mounting: Ceiling installation / DIN Rail Bar adapter:
                                             DIN Rail Bar EN 50022 – 35x7,5
- Measures (W x H x D) in mm: without grounding clip: 50x26x116
                                             With grounding clip: 50x26x146

Interface (depending of model type):
- KNX   via connection clamp (Twisted Pair)
- Ethernet   via RJ45-jack
- EnOcean   via external SMA antenna
- 2xDMX 512   Connection clamp nominal wire size: 1,5mm²
- Pushbutton input   Connection clamp nominal wire size: 1,5mm²

3   MOUNTING

The device can be used for installation in ceilings or alternatively for DIN Rail mounting. In case of ceiling mounting the device has grounding clips on each side. For DIN Rail mounting an additional adapter has to be used. The grounding clips can be broken off easily if wanted.

Figure 1: DUO DMX GATEWAY with grounding clips

DIN Rail Bar adapter
The adapter is fixed on the chassis with 2 screws (part of delivery). Please note that the adapter only may be screwed in the two folded holes.

Figure 2: DIN Rail Bar Adapter

Note: Please attach the DIN rail Adapter only on the two marked holes. Using the wrong holes the screw ends might touch the bottom of the circuit board!

Please be careful if you need to troubleshoot a device mounted on the DIN rail. Pull with too much force on the gateway, the screws can be pulled out from the chassis.

3.1 CONNECTION PLAN

In the following image you will find an overview over the connection the DUO**DMX** GATEWAY offers in all available variants.

Figure 3: DUO DMX GATEWAY - connection overview
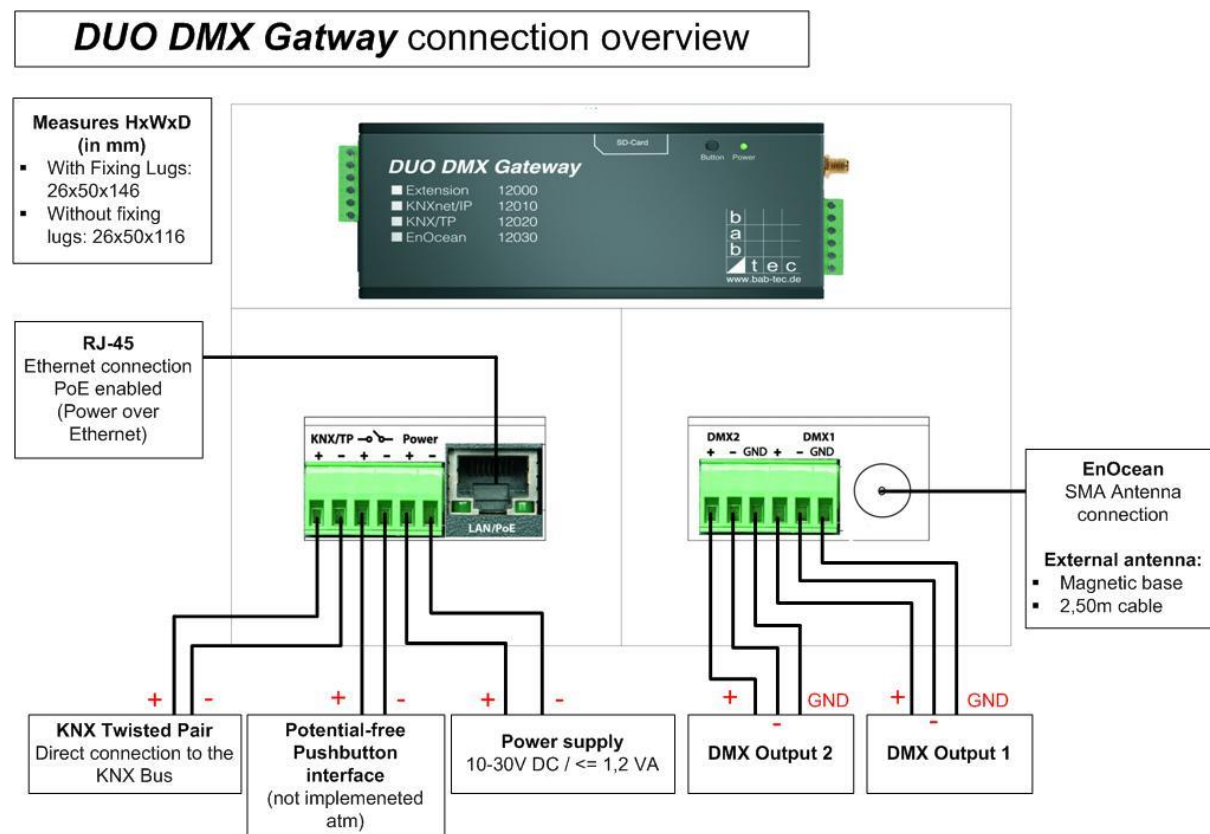
Device model: Extension (article No. 12000)
As an extension the unit is controlled via the "*BMX*" protocol of eibPort.
Communication takes place over the network. Therefore the device has to be connected to the local network.

Device model: KNXnet / IP (article No. 12010)
As KNXnet / IP version the device's control commands are received via the "*KNXnet / IP*" protocol. Therefore, the device must be connected to the network, too.

Device model: KNX / TP (article No. 12020)
As KNX Twisted Pair version, the device is directly connected to the twisted pair wiring of the KNX bus. For this purpose the device has two terminals on one of the connectors.

Device model: EnOcean (article No. 12030)
The EnOcean device can manage by the control signals of EnOcean radio. The device only requires a power supply. Moreover, the external antenna of the device can be connected. The link to the EnOcean profiles is done with the software DMX Configurator.

Device model: Standalone (Article No. 12040)
As a standalone variant, the Gateway receives the DMX commands via a smart phone app. The device is integrated into the existing WLAN via the WLAN antenna.

Device model: Extension SR (Article No.: 12100)
The "Extension SR" version not only permits the transmission of DMX commands on the basis of incoming BMX commands (see "Extension version" above), but also sends BMX telegrams on the basis of incoming DMX commands. The master/slave configuration (transmit/receive) of the DMX interfaces can be performed separately for each interface. The connection is performed in the same way as for the device versions without "SR". In order to be able to transmit and receive simultaneously on one DMX cable, a jumper can be inserted from one interface to the other. The DMX interfaces are short-circuit proof.

Device model: KNXnet/IP SR (Article No.: 12110)
The "KNXnet/IP SR" version not only permits the transmission of DMX commands on the basis of incoming KNXnet/IP SR telegrams (see "KNXnet/IP SR version" above), but also transmits KNXnet/IP SR telegrams on the basis of incoming DMX commands. The master/slave configuration (transmit/receive) of the DMX interfaces can be performed separately for each interface. In order to be able to transmit and receive simultaneously on one DMX cable, a jumper can be inserted from one interface to the other. The DMX interfaces are short-circuit proof.

Device model: KNX/TP SR (Article No.: 12120)
The "KNX/TP SR" version not only permits the transmission of DMX commands on the basis of incoming KNX/TP telegrams (see "KNX/TP version" above), but also transmits KNX/TP telegrams on the basis of incoming DMX commands. The master/slave configuration (transmit/receive) of the DMX interfaces can be performed separately for each interface. In order to be able to transmit and receive simultaneously on one DMX cable, a jumper can be inserted from one interface to the other. The DMX interfaces are short-circuit proof.

Connection with the DMX bus
The device has two independently from each other acting DMX outputs. Depending on the device type, the interfaces can be used as required either as a DMX master (sending) or DMX slave (receiving). The connection is realized via a 6 pin Screw terminal, the polarity is marked on the case. Of course it can also be used with only one output connector. The interfaces are short-circuit proof (in the case of device types "SR") and can be bridged.

4 PUT IT INTO OPERATION

When ceiling mounted, the gateway can be installed near the DMX system. For operation you need the following components:

- Power supply (or PoE)
- connection to the network (not mandatory, but would be an advantage)
- connection to the DMX bus
- connection to one of the controlling medias (network, KNX or EnOcean)
- the software "*DMX Configurator*"

The configuration for the device is done using the software "*DMX Configurator*" over the network or a SD-card. Which device is concerned is irrelevant

Please note: The initial configuration must be performed with an SD card.

For this purpose you will requires a standard SD card and a card-reader device for your PC.

4.1 DMX-CONFIGURATOR INSTALLATION

Please first install the software "*DMX-Configurator*". The setup file for installing the software "*DMX Configurator*" can be found on the CD or can be downloaded at www.bab-tec.de. The Software is MS-Windows® based.

Installation Instructions:
Please double-click the file "*setup.exe*". The Setup dialog opens:

Figure 4: DMX-Configurator - Setup Dialogue

By clicking on "*Next*" you can move through the menu. Accept the license agreement and select an installation location on your hard disk. Select "Finish" at the end and the installation wizard has installed the program on your PC.

After installation you find the program under "*Start*"> "*Programs*"> "*DMX Configurator*".

4.2   DMX-CONFIGURATOR UPDATE

Do you want to install a newer version of the DMX Configurator, it is important to uninstall the old version first properly. To do this go to "*Start*"> "*Control Panel*"> "*Programs and Features*" (in Windows XP "software") and then remove the "*DMX Configurator*". Now select the new setup file and proceed as described above.

4.3   DEFAULT SETTINGS

The DUO**DMX** GATEWAY is delivered with the following factory settings:

- IP-address: 192.168.1.223
- Subnetzmaske: 255.255.255.0
- Device name: MAC Adresse des Gerätes
- Physical address KNX: 15.15.255
- Mulitcast address KNXnet/IP ("Routing"): 224.0.23.12 (cannot be changed)
- EIBPort System ID: 0 (cannot be changed, important only for type 12000)

4.4   INITIAL COMMISSIONING

Connect the standard 12-30V power supply (DC) to the connection clamps or connect the device to PoE enabled network cable. The power LED is lighting constant green if the device is in operation.

Note: You require an SD card for the initial commissioning

- Start the DMX-Configurator and browse to the menu "Extensions" – "DUO**DMX** GATEWAY".
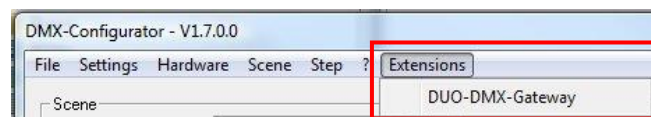
Figure 5: DMX-Configurator – extensions

- You will be asked to choose the device type you are using You have the following choices:
  - *„KNX/BMX"*: for following device variants:
    - „Extension"(Art.-Nr. 12000),
    - „KNXnet/IP" (Art.-Nr. 12010)" oder
    - „KNX/TP" (Art.-Nr. 12020).

  - *„KNX/BMX Master/Slave"*: for following device variants
    - „Extension SR" (Art.-Nr. 12100)
    - „KNXnet/IP SR" (Art.-Nr. 12110)
    - „KNX/TP SR" (Art.-Nr. 12120)

  - *„EnOcean"* for following device variants
    - „EnOcean" (Art.-Nr. 12030).

  - *„WLAN"* for following device variants
    - „Standalone" (Art.-Nr. 12040)
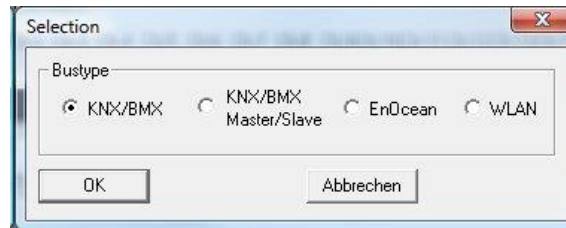
Figure 6: DMX-Configurator - device Selection

Depending on your selection, four different configuration windows are made available. For a detailed description, please read the section on "Expansions".

Note: For the initial commissioning it is of primary importance that you introduce the DUO DMX GATEWAY with the aid of an SD card into the same network area as your PC. In the sequence below, you can transfer all other configuration data easily via the network.

- ▪ Retrieve the network settings of the device as follows:
  - When selecting "*KNX/BMX*" and "*KNX/BMX Master/Slave*" click on the "*LAN/KNX*" tab.
  - When selecting "*EnOcean*", click on the "*LAN/EnOcean*" tab.
  - When selecting "*WLAN*", click on the "*WLAN*" tab.

The diagram below shows a sample configuration for "*KNX/BMX*".
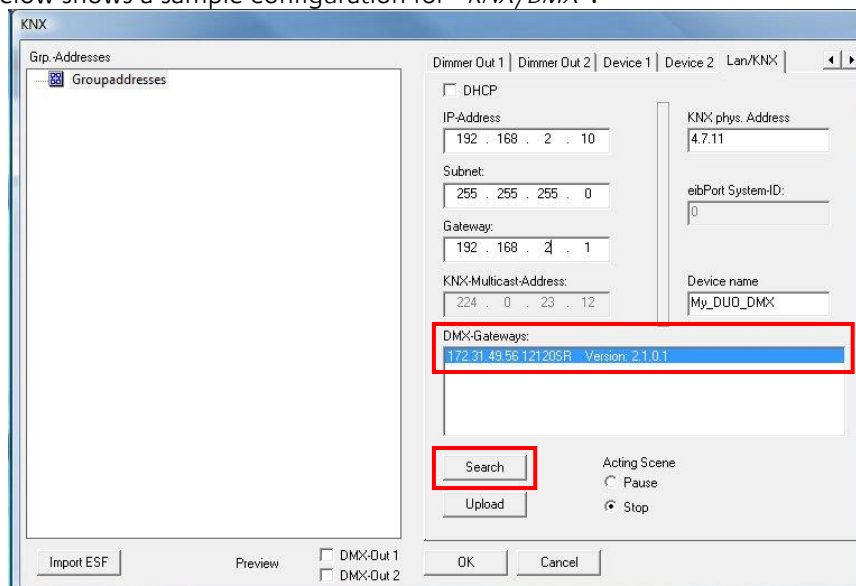
Figure 7: DMX-Configurator - Window LAN/KNX

- ▪ Below the "DMX Gateways" field, click on the "Search" button. This displays all DUO**DMX** GATEWAYs to be found in the network, regardless of the IP addresses of the local PCs.

- ▪ on the basis of the search result (the displayed IP address) whether adaption of the IP address of the DUO**DMX** GATEWAY is necessary or

- ▪ If an adaptation is necessary, make the necessary settings in the fields provided for this purpose ("*IP address*", "*Subnetwork*", "*Gateway*").

- ▪ Then close the "Expansion" window again and save the project using the "File" – "Save as" menu option (so that you can expand it at a later stage).
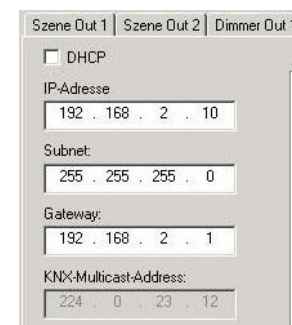
Figure 8: Adapt network settings

- Open the "*File*" menu again and save the project using "*Export HEX File*" with a unique name in the required folder.

- Insert the SD card in your card reader, ensuring that the SD card contains no data.

- Then copy the generated HEX file to the SD card and rename it to "*config.par*".

- Insert the SD card in the slot of the DUO**DMX** GATEWAY. The green operating LED of the device goes out briefly while the data is being read in. The configuration is loaded as soon as the green operating LED lights up again.

Figure 9: save project

- Restart the device by using the power supply switch.

- Open the *DMX Configurator* and check, as described in the steps above, whether the DUO**DMX** GATEWAY has accepted the new IP address settings. From now on, you can easily transfer all configuration changes via the network (see Section on "*Transferring configuration data*").
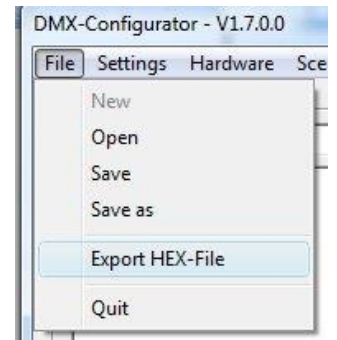
4.5 IMPORTANT VERSION INFORMATION

Find Software version

The version number of the DMX-Configurator can be read in the title bar of the window.
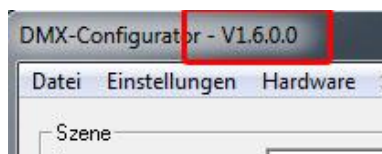
Figure 10: DMX-Configurator Version

New software and firmware

Since the DMX Configurator Version 1.6.0.0 the software only will work with devices that will have at least firmware 2.0.0.1. To check which firmware you have in use in your device, please use the "*Search*" function in the tab "*Lan / KNX*" , LAN EnOcean or rather "WLAN" in menu "*Extension*". Compare also the chapter "*Activating the DMX Preview*". The firmware version is displayed along with the IP address and device name.
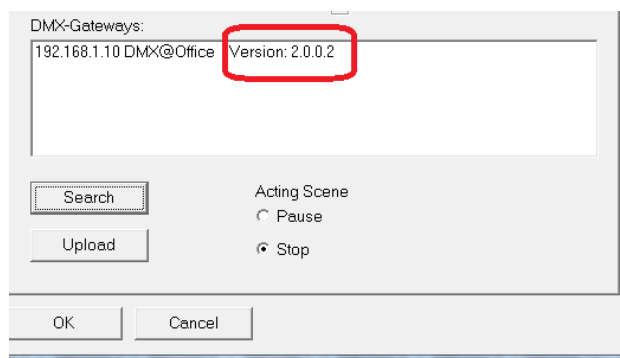
Figure 11: Displaying firmware version

If your device does not have the required firmware version a firmware update is required (see "Firmware Update"). If a device received once the firmware 2.0.0.1 or later, it may have to copy the configuration data only from the DMX Configurator 1.6.0.0 or later. If you have an older version of the DMX Configurator, please download the actual one from our homepage.

Older project data

Projects from older versions of DMX-Configurator can be opened without problems in the latest software version (DMX-Configurator). Once a device is already loaded with a configuration before a firmware update is done, it has (after the firmware update is done) to be reloaded with the software (1.6.0.0 or later) into the device.

4.6 BEHAVIOUR IN CASE OF POWER FAILURE

Behavior in case of power failure

The behavior of DMX devices in a power failure at the DUO**DMX** Gateway depends on the devices its one. According to DMX specification a subscriber moves to a safe operating condition (eg, lamp off). By return of the power supply, all DMX channels set to the value "0".

Behaviour on bus voltage failure (only KNX / TP device)

In the event that the bus voltage fails but the power supply of the device remains upright, only the control of the DUO**DMX** GATEWAY is interrupted. The DMX signal is still sent, so the current "*picture*" of the DMX outputs remains. Even after the return of the bus voltage nothing varies in the DMX range (unless new KNX telegrams are send).

5   PROGRAMMING

The programming of the DUO**DMX** Gateway is done over the DMX-Configurator. There the scenes are set up, the Group Addresses resp. EnOcean Profiles are linked to the dim outputs or the scenes. The configuration is transferred over the network or over an SD-card into the device.

5.1   ENABLING THE (DMX-) PREVIEW

In conjunction with the DUO**DMX** GATEWAY the *"DMX Configurator"* software provides a so called *"DMX Preview.* In the Preview all changes made to the DMX channel controllers are made directly visible on the terminal device. In this way, the sequences and scenes can be directly tested and modified if necessary, without having to transfer the configuration first.

Note: Please note that the DMX Preview transmits permanent values for as long as the DMX Configurator is opened and the Preview is activated. If you were then to try and control the DMX channels by means of the respective bus system, its commands would be overwritten by those of the active preview. Make sure that you only use either the preview or the corresponding control system (KNX, BMX, EnOcean).

The preview can be done in two ways

1. **Broadcast Preview:** All DUO**DMX** GATEWAY in the network are addressed using the preview no matter what network settings you have and whether they just allow the PC from the DMX-Configurator to be started. The preview will be sent via Broadcast signals into the network.

2. **Unicast Preview:** Only a selected DUO**DMX** GATEWAY receives the preview signals. It is important to note, that the desired gateway and the PC are within the same network area. The signals are sent via Unicast to a specific IP address.

Which of the two DMX outputs are used for the Preview signals can be choose. To activate the preview, go to the menu "*Extensions*"> "*DUO-DMX Gateway*".

Activation of the broadcast Preview
To activate the broadcast preview just one of the two (or both) checkboxes "*DMX Out 1*" or "*DMX Out 2*" has to be selected. Choose your selection and confirm with "*OK*". From now on, the preview will be sent via broadcast signals into the network and interpreted by all available gateways.
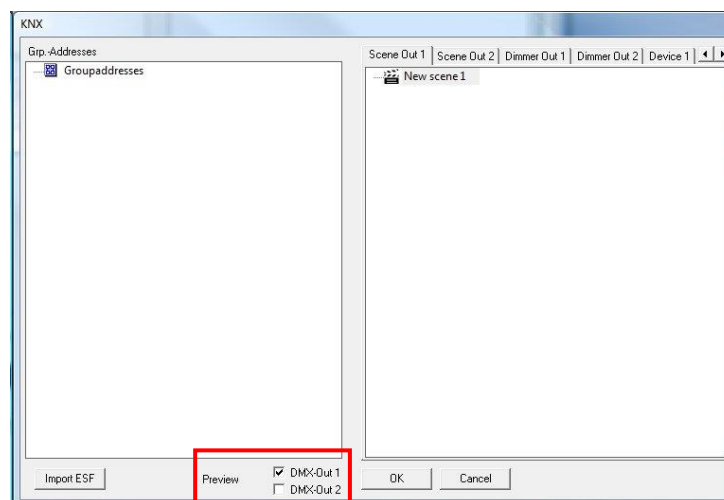
Figure 12: Broadcast Preview

Note: The preview is no setting that is transmitted to the gateway or will be stored in the project data of the DMX-Configurator. This setting is only to be activated on the client.

Activation of unicast Preview

To preview specifically addressed to a particular device, it is necessary that the appropriate device appears in the list "*DMX Gateway.*" To achieve this, click the button "*Search*". Thus, all are located in the network devices with IP address and device name (default setting the MAC address). In order to activate the preview for one of the devices in the list, the corresponding device must be marked (blue background) and the preview then activated by clicking the checkbox.
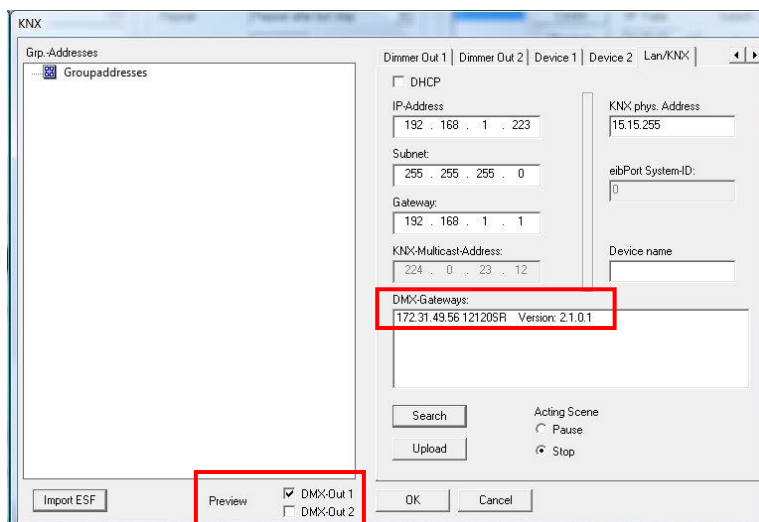
Figure 13: Unicast Preview

Note: Please note that the PC and the DUO DMX GATEWAY must reside in this case in the same area network (subnet)!

To set the DUO**DMX** GATEWAY to the desired IP address range, please have a look at the section "*Extensions*".

Firewall settings

If a firewall is installed on the client computer it must be unlocked for the DMX-Configurator for ports 4042, 4044 and 4045.

5.2   DMX CONFIGURATOR

The DMX control software "*DMX Configurator*" is used to create light images (Step) and light scenes (Scene). The configuration data following out of that will be transferred over the network or by SD-card to the device. Apart from that, a preview function shows changing's on the DMX-controllers of the DMX-Configurator directly on the DMX end devices. The software is suitable for all current versions of Windows and can be found on the supplied CD or downloaded from www.bab-tec.de ("Service" – "Downloads").

5.2.1   USER INTERFACE

The user interface is clearly structured into five broad areas.

1. Administration of the scenes
2. Scene settings
3. Administration of steps
4. DMX channel settings
5. Menu bar settings

Figure 14: DMX Configurator – User interface

Using the menu bar to configure various features of the software and hardware can be reached. These are described separately below.

5.2.2 CHANGE MENU LANGUAGE

In order to change the menu language of the DMX-Configurator, open the menu under the "*?*" (Question mark). The DMX-Configurator must be restarted for it!

5.2.3 GENERAL DESIGN OF THE DATA STRUCTURE

The input of the sequence is done in two steps. First a scene is created, forming a so-called envelope for each step (Steps) of the light flow.

```
┌─ PROJEKT ─────────────────────────────────┐
│   ┌─ SZENE 1 ───────────────────────────┐  │
│   │              ┌─────────────────────┐ │  │
│   │              │ STEP 1              │ │  │
│   │              │ STEP 2              │ │  │
│   │              │ STEP 3              │ │  │
│   │              └─────────────────────┘ │  │
│   └─────────────────────────────────────┘  │
│                                            │
│   ┌─ SCENE 2 ───────────────────────────┐  │
│   │              ┌─────────────────────┐ │  │
│   │              │ STEP 1              │ │  │
│   │              │                     │ │  │
│   │              └─────────────────────┘ │  │
│   └─────────────────────────────────────┘  │
└────────────────────────────────────────────┘
```
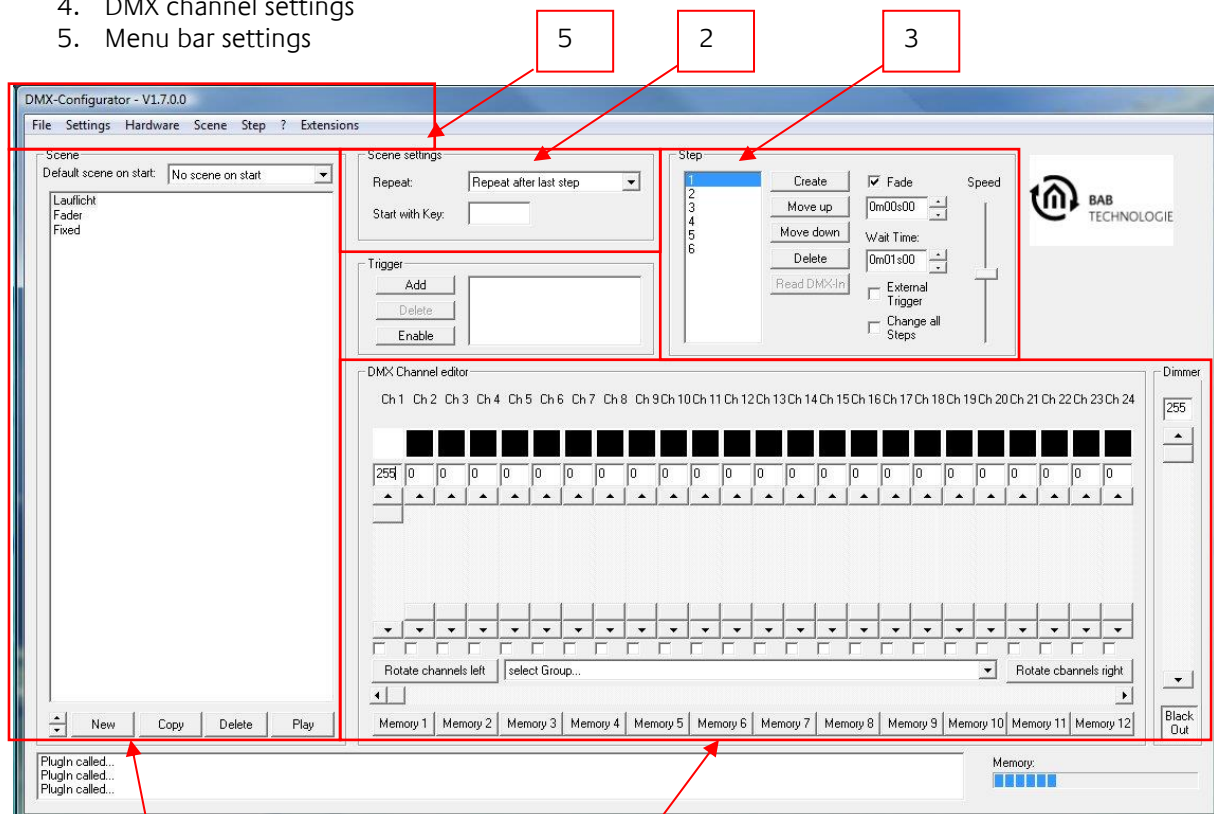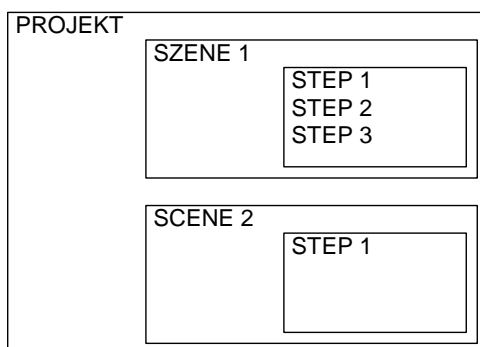
A scene can contain one or more steps, where at a static light image is generated by only one step or a dynamic light image with multiple steps.

5.2.4 GENERATING SCENES

Before the entry of individual steps can be made a scene must be selected or created.

Creating a new scene takes place with the button New .

A new entry scene is inserted into the scene list. This name can be edited freely.

The Button Copy copies all selected scenes including all their steps.

Delete deletes the selected scenes including all their steps.

The arrow box serves for displacing the scenes within the scene's list.

Important Note:
At the start of each scene the DMX-Configurator is assumed that the corresponding DMX channel holds the value "0". If not so, it may happen that a new scene added up its DMX values to existing values (of the old scene). The lamp will display incorrect values.

That behavior does not occur if each scene is first started with a step, with the value "1" and a subsequent step with the value "0". Between the two steps is not a "fade" and a minimum "wait time" of 50 ms. In this way, each DMX channel is set to the value of "0" before starting the actual scene. Maybe it is reasonable to create a special scene, which only serves to set "0" to the desired DMX channels.
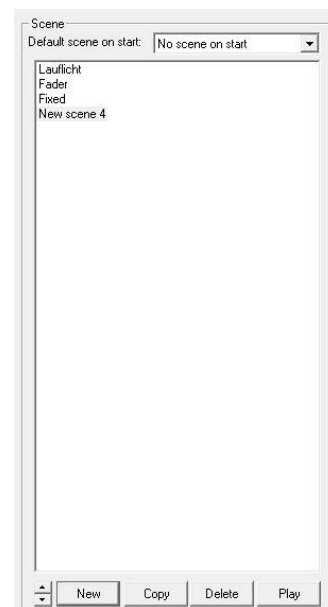
Figure 15: Scene's list

5.2.5   CREATING OF STEPS

By creating and editing steps, the individual light image is created and when linked together, a dynamic light image will follow. Static light images are to create with only one step.

Faid and Hold

Step-Liste

Reapeat Scenes

Channel Control

DMX-Group Control

DMX-Master Control

DMX-Value Input

Shift to left

Channel – direct access button

Shift to right
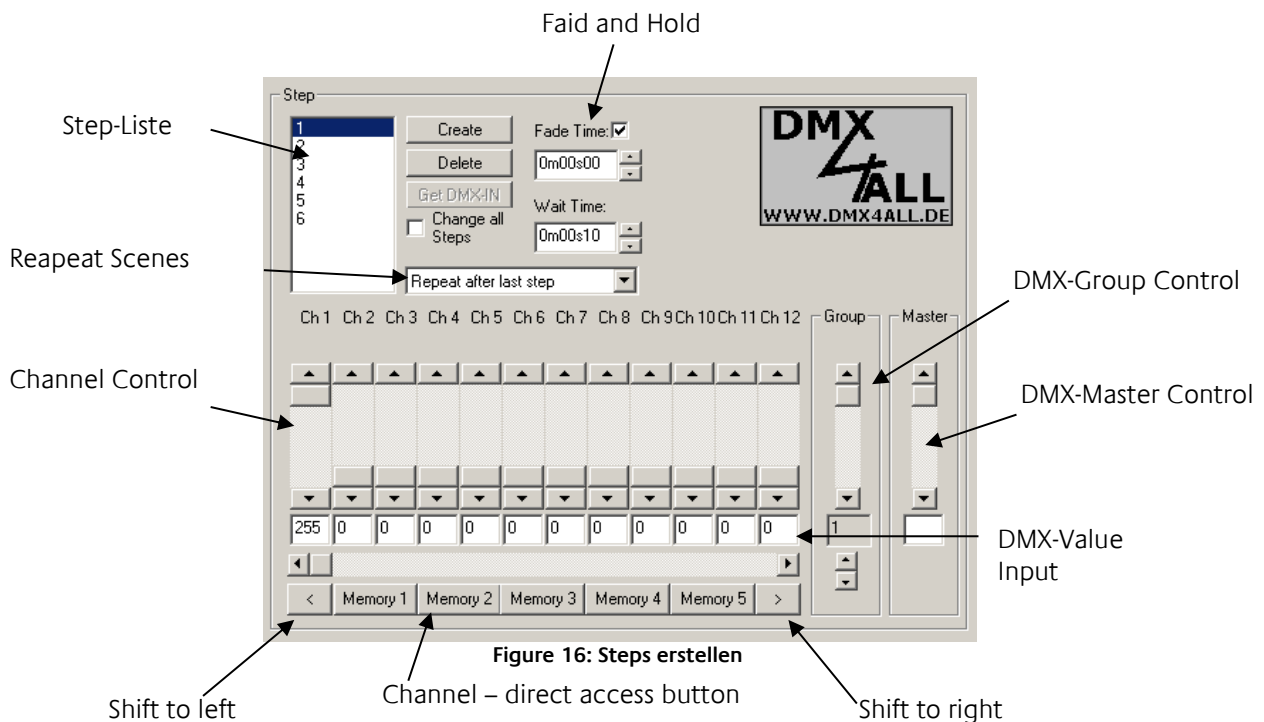
Figure 16: Steps erstellen

For the setting of different DMX values 12-channel slide controls are available. These are labeled with the channel number. To reach all 512 channels, you must select the underlying horizontal scrollbar. The additional existing Channel direct access buttons are modified under "*Application settings*". There the assigned DMX channel numbers are set, which are then accessed at once by pressing these buttons.

Per step, different DMX values for each channel can be set. By stringing together several steps with various DMX values a dynamic light image can be created. The "*step list*" includes all steps in chronological order. The transition between two steps determines the cross-fade (Fade time) and hold time (Wait time), which can be set separately for each step. The option "*Change all steps*" is for to change the "*Fade Time*" and "*Wait Time*" to all landscaped steps in the Step list.

Get DMX IN
Not in function for the DMX Gateway.

Rotate channels left / right
Causes the set all DMX values are shifted by one channel to the right (+1) or left (-1). This allows the easy creation of "*chaser*" scenes.

5.2.6   COLOR PICKER

The color picker makes entering RGB color values easy. In this case be 3 consecutive DMX channels, the R / G / B values of a selected color is assigned. To achieve the color picker, click on the first RGB (of 3) DMX channels with the right mouse.

This opens a menu with the Color Picker then the left mouse button must be clicked.
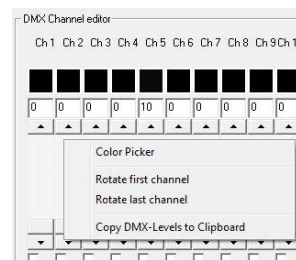
Figure 17: Color Picker selection

The dialogue of the Color Picker is available in 2 different views. Left the standard representation (normal style) and the on the right color distribution as color wheel (round style) is shown,

Go for color selection as follows:
- Select the color from the color representation
- Select the color brightness
- Click on OK and the settings for R / G / B can be taken

Color shape
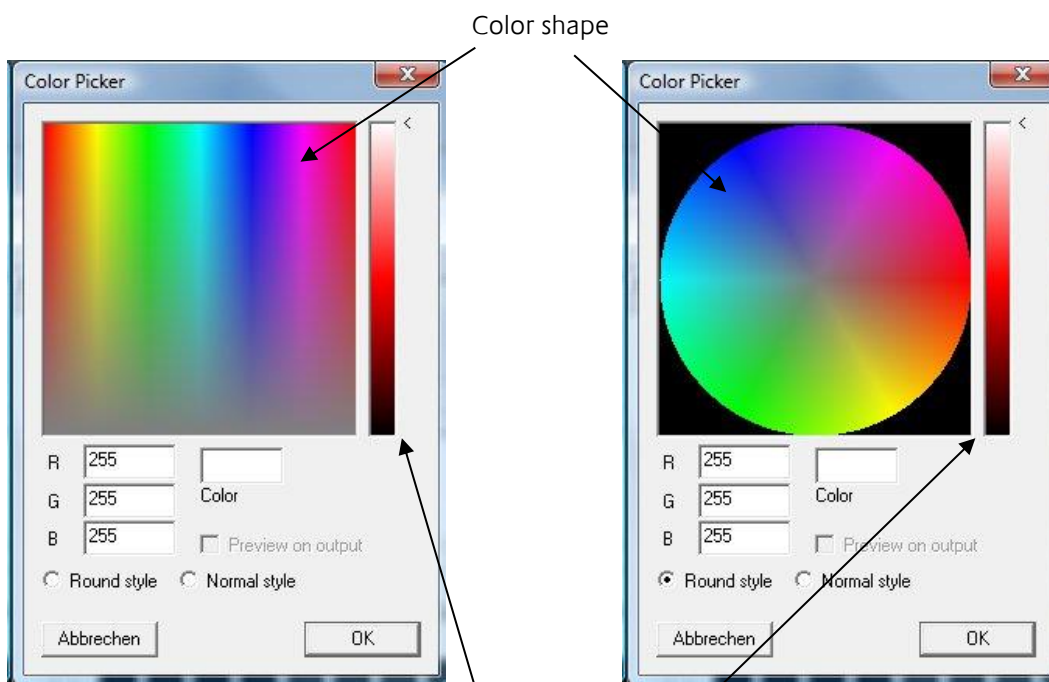
Figure 18: Color Picker – different views

brightness

Note: By clicking the right mouse button on the controller for color brightness make this center to 50%.

5.2.7　　DMX-GROUPS

DMX groups are suitable for simultaneous editing of multiple channels. There are 16 groups available where you can combine any channels.

To create or edit the group, select in the menu "*Settings*"> "Application settings" and then choose the Tab "*Groups*".
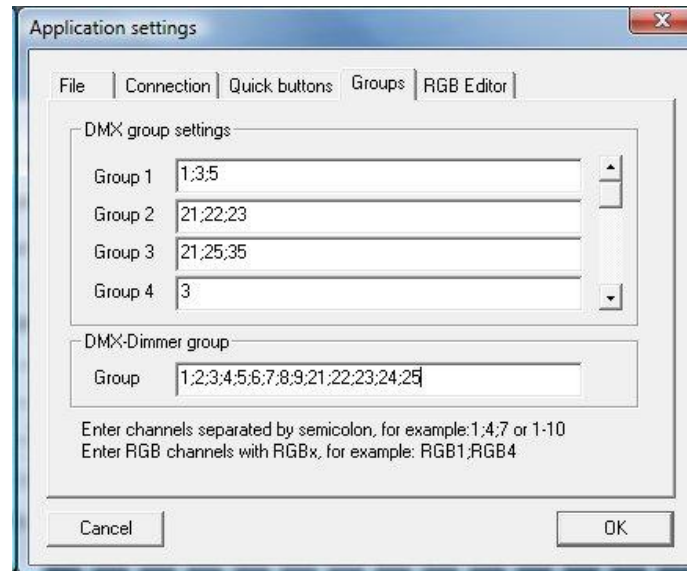
Figure 19: define DMX groups

In the box next to the group name the DMX channels must be entered, which form the group. Here, the separation of DMX channels is made with a semicolon. One DMX-channel can belong to different groups.

After you define the groups you will see them in the group selection. By selecting a group, the selected channels are marked in the box and activated. They are tied together and all channels are set to the same value as soon as one of the fader is changed.
If you need additional channels that are not defined as a group, you can add them by manually selecting the check box temporarily.

Displaying the connected channels

group selection

5.2.8 DMX-MASTER GROUP

A special group is the master group. The listed DMX channels can be scaled to the output on the connected interface according to the master value.

Example 1: DMX value = 100%; Master = 50% ➜ 50% results in the output channel

Example 2: DMX value = 50%; Master = 50% ➜ 25% results in the output channel

DMX-Master

activate BlackOut
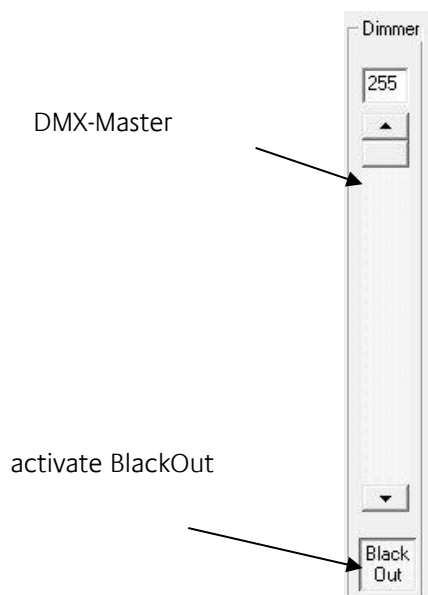
Figure 20: DMX Master Control

5.2.9 COUPLING OF SCENES

What action is executed after the last step in a scene is set by the selection box under the step list.

- **Repeat after last step:** The scene is running in an endless loop.
- **Stop after last step:** The scene will stop the execution after the last step. The light image of the last step remains unchanged.
- **Execute:** The selected scene is performed after the last step.

5.2.10 SAVE AND LOAD PROJECTS

Under the File menu, you can store your steps and created scenes as a project and open it again. The created files are in the specific format *.dx1.

Figure 21: Load and save projects

5.2.11   EXPORT AND IMPORT SCENES

In addition, you can save individual scenes separately. This is useful if you need the same scene in another project. To save individual scenes using the menu Scene -> *Export*. The saved file has the extension "* scn.". With the menu *Scene -> Import* an exported scene in your project is added.

Figure 22: Scene Export and Import

5.2.12   EXPORT AND IMPORT OF STEPS

The separate storage of Steps is analogous to these of the scenes. To save individual steps using the menu *Step > Export*. The saved file has the extension "*. stp". The menu item *Step> Import* you can add a step to the end of the step list.

Figure 23: Export and Import of Steps

5.2.13   RGB EDITOR

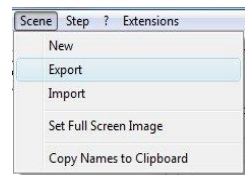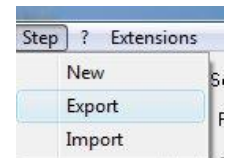The RGB Editor is specifically designed for the production of light images with LED stripes or LED panels. Enable the DMX-editor in the menu under *Settings> RGB Editor*. The sliders are replaced by colored rectangles. These represent the individual RGB channels.
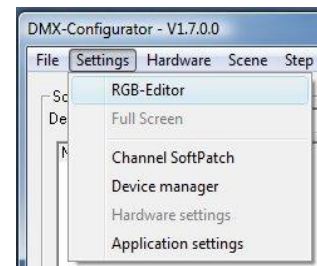
Figure 24: start RGB Editor

5.2.13.1   CONFIGURE RGB EDITOR

You can configure the display and the assignment of the RGB settings to the DMX channels. To do this, select the menu item *Settings> Application settings* and then go to the Tab *RGB Editor*.

This opens a dialog where you will find the following settings:

- **Pixel H:** Indicates how many RGB fields should be arranged horizontally.
- **Pixel V:** Indicates how many RGB fields should be arranged vertically.
- **First Pixel offset:** Specifies how many DMX channels are before the first pixel
- **Channels/Pixel:** Specifies how many DMX channels can be assigned to a pixel. Follow all RGB channels directly on one another, is here to provide third More control channels or a channel W are used, must be stated here also that much more.
- **Example:** The DMX4all LED dimmer is indicated here since five channels for a total of 5 RGBW and STROBE are used.
- **Channel R:** Specifies which (first) channel is assigned to used RED
- **Channel G:** Indicates which channel is assigned to the used GREEN
- **Channel B:** Indicates which channels is assigned to used BLUE
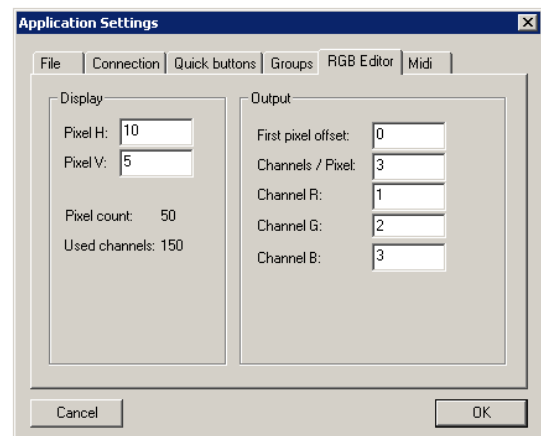
Figure 25: RGB Editor Configuration

ATTENTION:
RGB fields to a maximum of 512 channels can be predefined.

5.2.13.2   USE OF RGB EDITOR

Also be using the RGB Editors has generating scenes and steps as before. Have you created a step, the current information will be displayed on the RGB color fields.
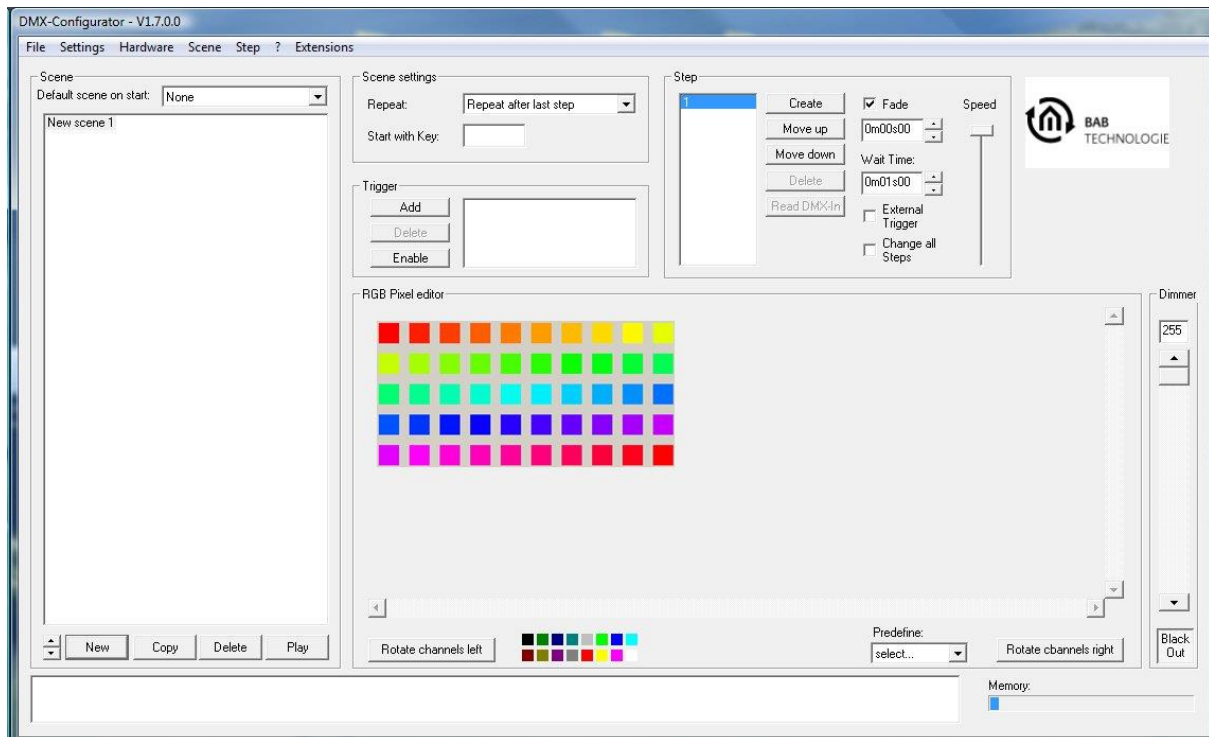
Figure 26: Color Picker

You can edit the individual fields by clicking the right mouse button on the RGB box. It now opens a menu from which you select "*Color Picker*". This will open the Color Picker window as already known.

In order to copy colors from one field to another, simply click the right mouse button on the RGB box and select "*copy*". Now you can click on "*paste*" or -by using the left mouse button in an RGB color box – "*copy*" it direct in place.

NOTE: After you select a new color with the Color Picker, this color is automatically used by "*copy*". This is indicated by the colored arrows at the cursor.

5.2.14   CHANNEL SOFTPATCH

To edit the soft patch settings, select the menu item "*Settings> Channel SoftPatch*".

The column "*output channel*" allows a subsequent matching of existing scenes to a other existing installation. Thus, the scenes remain unchanged and only the assignment of the individual channels must be new. No double seizure

In order to terminate the input with no changes, press Cancel. Press "*OK*", changes into the current project are accepted. Reset restores the default settings.

NOTE: In one project (dx1-File) only one separate channel setting is possible!
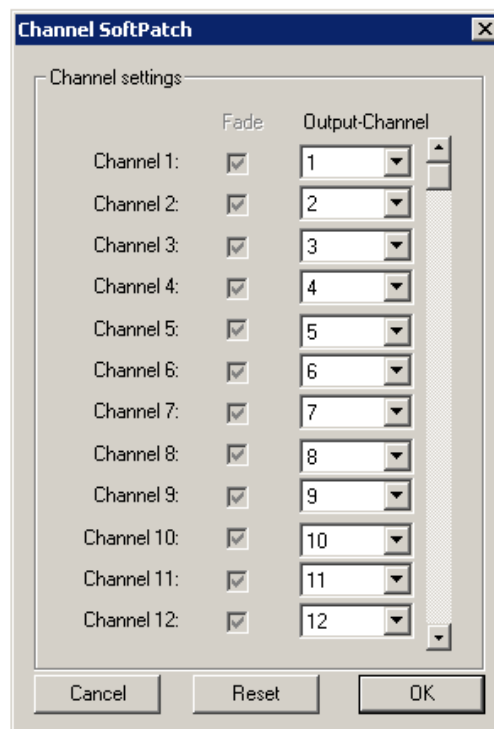
Figure 27: Channel Soft Patch

5.2.15   DEVICE MANAGER

In order to assemble the individual DMX channels into devices, it is necessary to define in the device management which channels belong to a device. The device management is accessed via the menu option *Settings → Device management*.
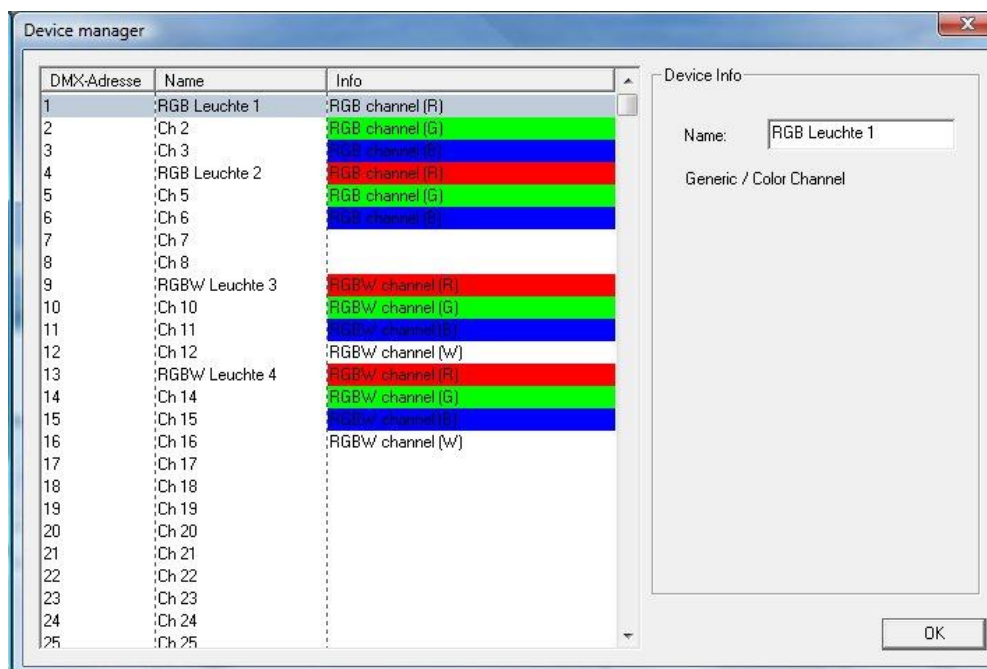
Figure 28: Device Manager

In the left-hand side of the window all DMX channels are listed (addresses 1 - 512). If a channel is marked, it can be assigned a name and specific colour using the input mask on the right. In order to define RGB and RGBW devices, proceed as follows:

RGB device:
- Mark the first channel of the required DMX device (e.g. channel 1 "Ch1").
- Under "Name" in the right-hand configuration window, enter the required name of your DMX device (e.g. "RGB lights 1").
- Now right-click on the channel and select "Add RGB channels". The device management automatically adds the RGB channels.

An RGB device is now defined. It is given the name that you assigned in the first channel.

RGBW device:
- Same as above, except that "Add RGBW channels" must be selected.

5.2.16   APPLICATION SETTINGS

Under the menu "*Settings*"> "*Application settings*" changes for the main program are possible.

The settings are divided into several groups.

"*Load Program*" specifies file on startup, which is loaded when starting the software.

- "*None*": There is no project loaded
- "*Load specified file*": it will load the specified project. With [...] the project file is selected.
- "*Load, last opened file*": The last opened project is loaded
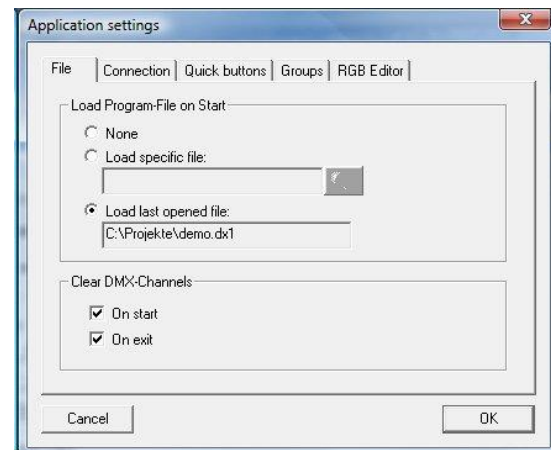
Figure 29: Application Settings - File

5.2.17   STORAGE LEVEL INDICATOR

Since DMX Configurator Version 1.6.0.0, there is a storage level indicator. The DUO**DMX** GATEWAY has a total space of 64 Kbytes. The level indicator shows you how much of this memory is used in your current configuration. Transfer more information to a device, there will be malfunction.
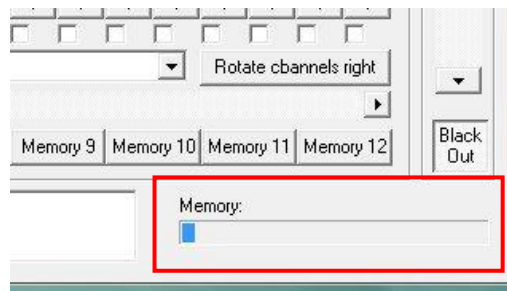
Figure 30: storage level indicator

Note: Even after shipment, a part of the memory is already occupied by the communication objects.

5.3 MENU „EXTENSIONS"

The specific settings for the DUO**DMX** GATEWAY are made in the menu "*Extensions*". Here the linking with the group addresses or EnOcean profiles, IP address assignment, and the transmission of configuration data is made. In addition, devices can be detected in the network there, the DMX Preview can be activated and switching between master and slave mode can be performed.

5.3.1 DEVICE VARIANTS

Before the specific settings of the DUO**DMX** GATEWAY can be carried out, the device versions must be selected. When you call the "Expansions" menu for the first time, the following selection appears:
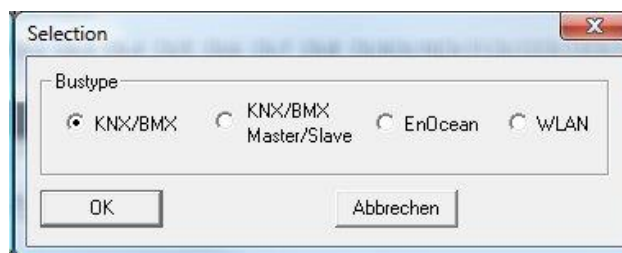
Figure 31: Device Variants

Select the respective "bus type" according to the version of your device. Overview of bus types / device versions:
(You can find out which version your device is from the marking on the front.)

KNX/BMX
- 12000 DUO**DMX** GATEWAY Extension for EIB**PORT**
- 12010 DUO**DMX** GATEWAY KNXnet/IP
- 12020 DUO**DMX** GATEWAY KNX/TP

KNX/BMX Master/Slave
- 12100 DUO**DMX** GATEWAY Extension SR
- 12110 DUO**DMX** GATEWAY KNXnet/IP SR
- 12120 DUO**DMX** GATEWAY KNX/TP SR

EnOcean
- 12030 DUO**DMX** GATEWAY EnOcean

WLAN
- 12040 DUO**DMX** GATEWAY Standalone

If the selection is made the configuration window for each technology / bustyp is opened. As long as the project is not saved, this selection is reopened each time the *Extension* DUO-DMX Gateway is called.

5.3.2   KNX/BMX CONFIGURATION

If, in the case of the DUO**DMX** GATEWAY, it concerns a KNX or extension device, the bus type "KNX/BMX" must be selected in the device selection.
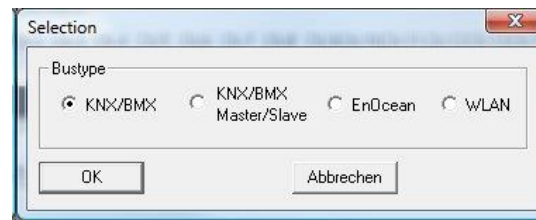
Figure 32: device selection - KNX/BMX

This applies to the following device types:
- 12000 DUO**DMX** GATEWAY Extension
  Control via the BMX protocol (network-based) of the EIB**PORT**. See also the section on "*Extension device version*"
- 12010 DUO**DMX** GATEWAY KNXnet/IP
  Control via the KNXnet/IP protocol (network-based).
- 12020 DUO**DMX** GATEWAY KNX/TP
  Control via KNX twisted pair (twisted pair bus).

In every case, the control is by means of KNX group addresses; only the transmission path of the telegrams differs.

After selecting this bus type, the "Expansion" window opens with KNX-specific parameters. The window is divided into two parts: The group address management takes place in the left half of the window, while the links with DMX and the "*LAN/KNX*" configuration are in the right half.
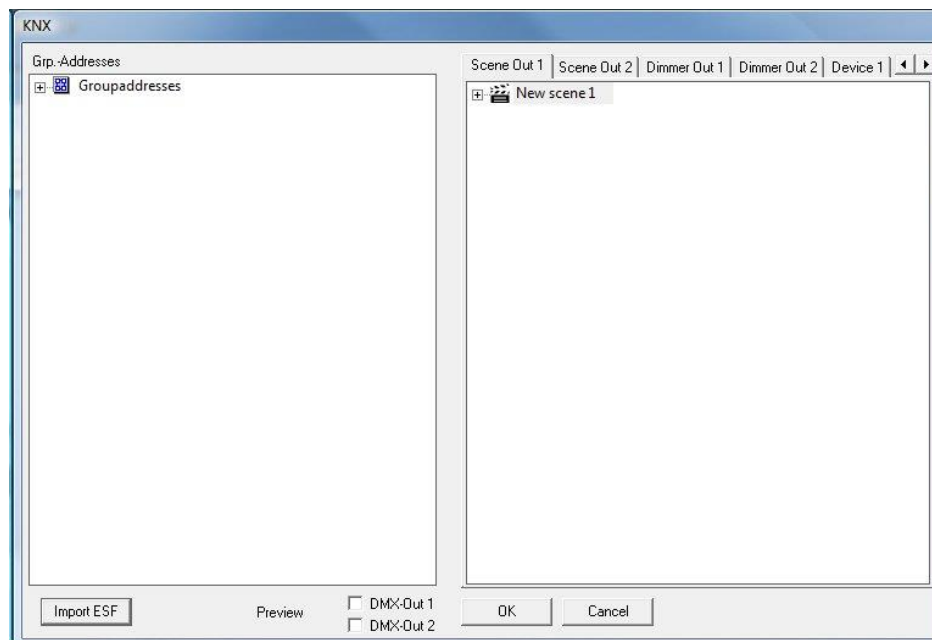
Figure 33: Configuration "KNX/BMX"

5.3.2.1 LINKING OF KNX GROUP ADDRESSES

The DMX channels of the two outputs and the created scenes must be linked to group addresses if you want to control devices with "*Extension*"(Art.-Nr. 12000), "*KNXnet / IP*"(Art.-Nr. 12010), "*KNX / TP*" (Art.-Nr. 12020) and „*Extension SR*" (Art.-Nr. 12100), „*KNXnet/IP SR*" (Art.-Nr. 12110), „*KNX/TP SR*" (Art.-Nr. 12120). First of all, addresses must be available in the group address management for this purpose. There are two possible ways of achieving this: 1. Set up group addresses in the *DMX configurator*, or 2. use ESF data import.

Figure 34: Group address management

SET GROUP ADDRESSES WITHIN THE DMX-CONFIGURATOR

If no appropriate ESF file with the corresponding group address exists, the group addresses can be created directly in the DMX-Configurator. Proceed as follows:

1. **Create a Main-, Middlegroup:**
   Click the right mouse button into the empty group address field while "*group addresses*" is checked. You will be prompted to create a new main group and can assign a name. Then click on the main group with the right mouse button and create a new Middle group.

2. **Setting up a group address**
   The required group address is set up by right-clicking on the middle group. A window then appears, in which "Number", "Name" and "Object type" can be specified.

Figure 35: set group addresses

Object types:
- 1 bit: DPT 1.001 (switch EIS 1), value: [0.1]
- 4 bit: DPT 3.007 (dim EIS 2 relatively), value: [brighter, darker, stop]
- 1 byte: DPT 5.001 (EIS 6 percent), value [0 – 100%, step size 0.4%]
- 3-byte DPT 232.600 RGB, value [R 0 - 255, G 0 - 255, B 0 - 255]
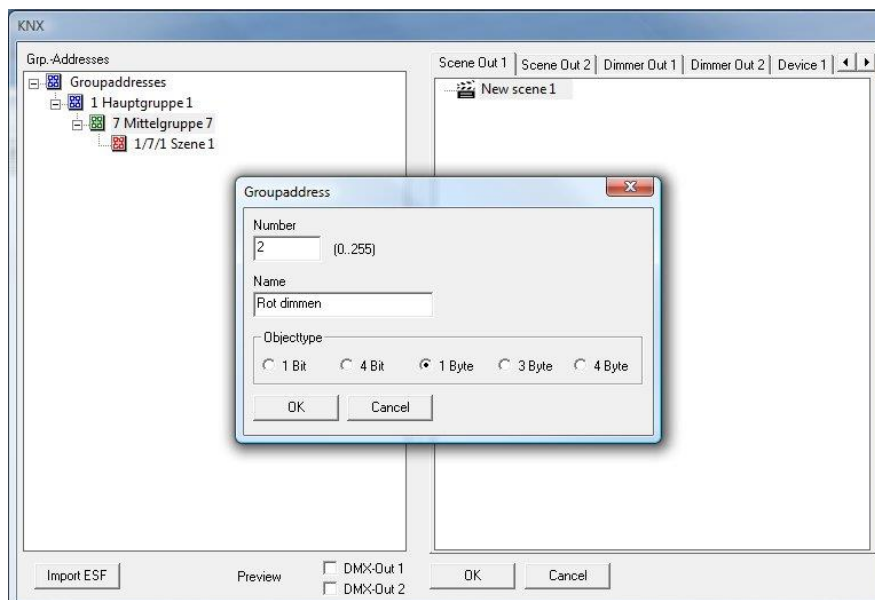- 4-byte DPT 12.001 4-byte unsigned as RGBW, value [(0...4 294 967 295): 1. Byte = R, 2. Byte = G, 3. Byte = B, 4. Byte = W]

3. **Deleting entries::**
   To delete an entry, highlight it and press the Delete key („*Entf*" | „*Del*") on your keyboard.

USING ESF DATA IMPORT

In order to link the group addresses of an ESF file (group address file ending with *.esf), it must first be exported directly from the ETS (or from the EIB**PORT**). For all objects of the DUO**DMX** GATEWAY the following data types are relevant:
- 1 bit: DPT 1.001 (switch EIS 1), value: [0.1]
- 4 bit: DPT 3.007 (dim EIS 2 relatively), value: [brighter, darker, stop]
- 1 byte: DPT 5.001 (EIS 6 percent), value [0 – 100%, step size 0.4%]
- 3-byte DPT 232.600 RGB, value [R 0 - 255, G 0 - 255, B 0 - 255]
- 4-byte DPT 12.001 4-byte unsigned as RGBW, value [(0...4 294 967 295): 1. Byte = R, 2. Byte = G, 3. Byte = B, 4. Byte = W]

In order to import an ESF file into the *DMX configurator*, proceed as follows:

1. **Import an ESF(groupadress-) file**
   Open in the DMX-Configurator menu "*Extensions*"> "*KNX*"> "*Import ESF*"
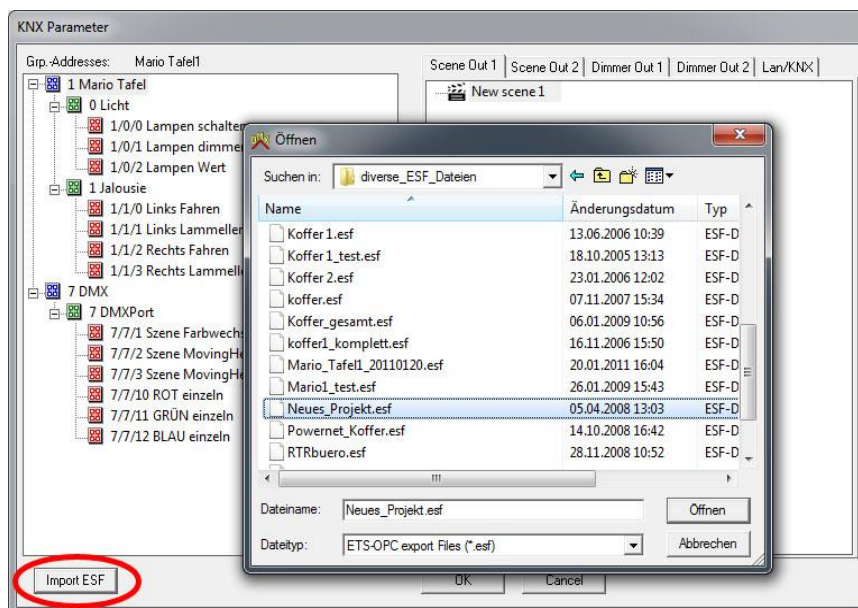

Figure 36: import ESF file

After selecting the desired ESF-file, in the left window of the address tree is displayed. The tree can be expanded or collapsed by clicking on the small "+" and "-" buttons.

5.3.2.2   GROUP ADDRESS LINKING

above), they can be used for being linked with various KNX objects of the DMX interfaces. The scene link "*Scene Out*", the link with dimmer channels "*Dimmer Out*" and scene links with predefined devices "*Device*" are available.

LINKING THE SCENES: („SCENE OUT")

In the Tab "*Out Scene 1* "and" *Scene out 2* "all previously scaled scenes are listed. The scenes can be linked with the following data type

- 1 bit: DPT 1.001 (switch EIS 1), value: [0.1]

Scenes are started by telegrams with the value " *1*" and either stopped or paused with the telegram value "*0*" (see Section "*LAN/KNX*").

To create a link, proceed as follows:
- Simply drag the required group address from the address tree on the left onto the corresponding scene on the right. The group address will then be displayed below the scene. (see diagram below)

Note: During the linking procedure, the program automatically checks whether the selected group address has the correct data type for the communication object. If it does not, this link is not possible and the group address cannot be linked.
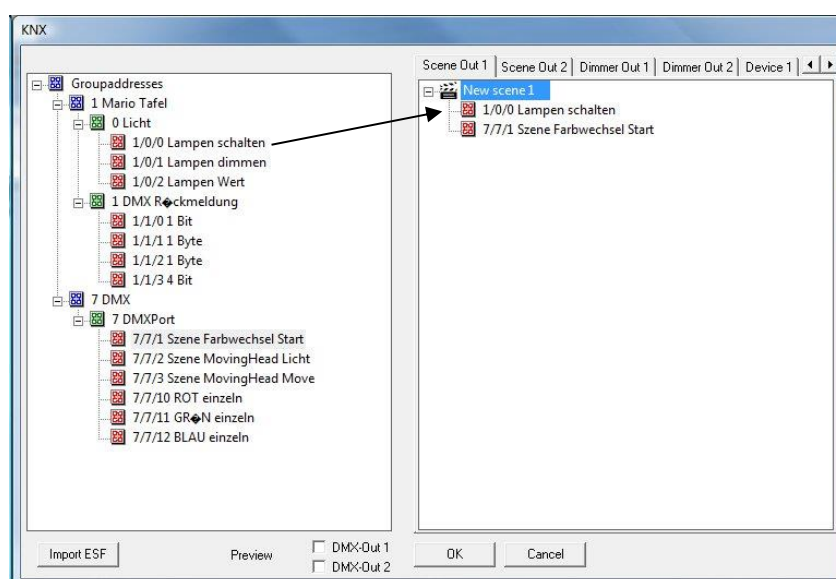
Figure 37: linking group addresses to scenes

Each scene can be launched from any number of group addresses. Simply all relevant addresses are dragged to the scene.

LINKING DMX CHANNELS

In addition to the scenes, the DMX channels can be individually controlled. Each of the 512 DMX channels maps its own KNX dimmer channel with the objects " *1-bit switching*", " *4-bit dimming*" and " *1-byte absolute dimming*" .

Note: The 1 byte value functions not only as an input, but also as an output. This means that if the channel is changed by one of the two other objects, the corresponding brightness value – if appropriately linked – is transmitted to KNX.

- 1 bit: DPT 1.001 (switch EIS 1), value: [0.1]
- 4 bit: DPT 3.007 (dim EIS 2 relatively), value: [brighter, darker, stop]
- 1 byte: DPT 5.001 (EIS 6 percent), value [0 – 100%, step size 0.4%]

The 1-byte group address object can be linked with several group addresses. In this case, the respective 1st group address is transmitting and receiving, whereas all other addresses are only receiving. If the object is switched by means of 1 bit, the communication object assumes the last value to be set. If, for example, the object has been dimmed to 50% by means of a dimming command, and then switched off, it is adjusted to 50% when it is switched on again.

To create a link, proceed as follows:

- Simply drag the required group address from the address tree on the left onto the corresponding device on the right. The group address will then be displayed below the scene. (see also diagram below)

Note: During the linking procedure, the program automatically checks whether the selected group address has the correct data type for the communication object. If it does not, this link is not possible and the group address cannot be linked.


Figure 38: Linking the dimmer channels

LINKING WITH PREDEFINED DEVICES ("DEVICE")

Apart from the dimmer channels and the scenes, group addresses can also be linked with DMX devices previously defined in the *DMX configurator*. One of these DMX devices can consist of either 3 (RGB) or 4 (RGBW) DMX channels. In order to be able to control these devices directly with a group address, the following data types are to be used:

- 3-byte DPT 232.600 RGB, value [R 0 - 255, G 0 - 255, B 0 - 255]
- 4-byte DPT 12.001 4-byte unsigned as RGBW, value [(0…4 294 967 295): 1. Byte = R, 2. Byte = G, 3. Byte = B, 4. Byte = W]

In order to assemble the individual DMX channels into devices, please proceed as described in the section "*Device management*". If the devices have been defined there, they appear automatically in the "Device 1" and "Device 2" windows. To create a link, proceed as follows:

- Simply drag the required group address from the address tree on the left onto the corresponding device on the right. The group address will then be displayed below the scene. (see also diagram below)

Note: During the linking procedure, the program automatically checks whether the selected group address has the correct data type for the communication object. If it does not, this link is not possible and the group address cannot be linked.
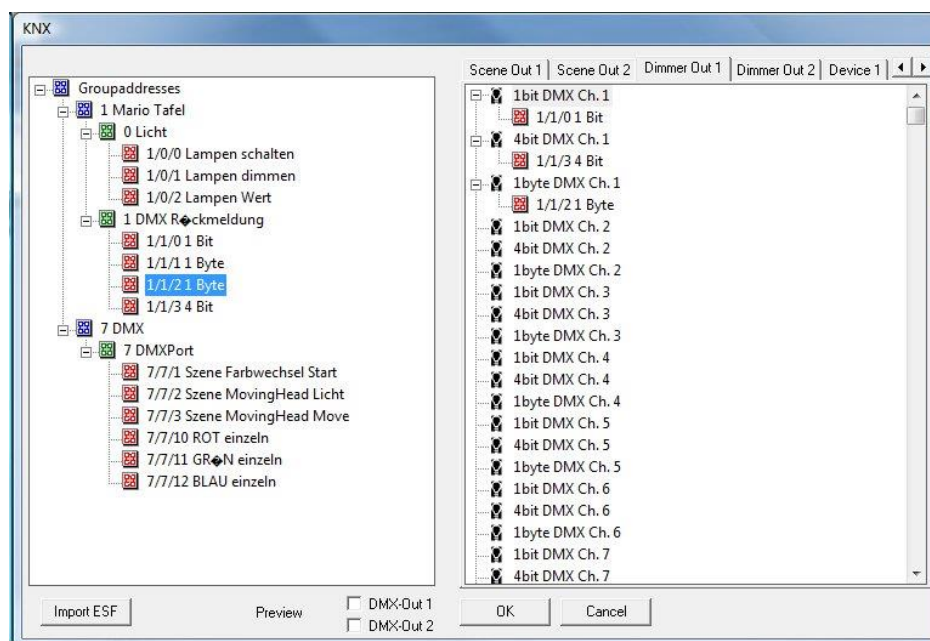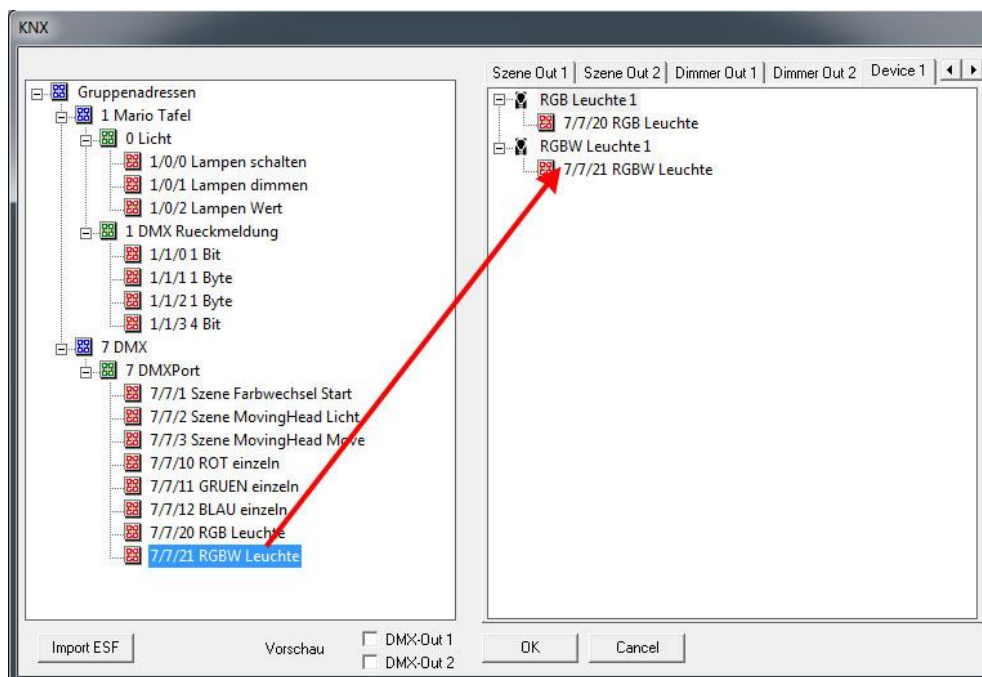

Figure 39: Link with predefined devices

5.3.2.3　　LAN/KNX

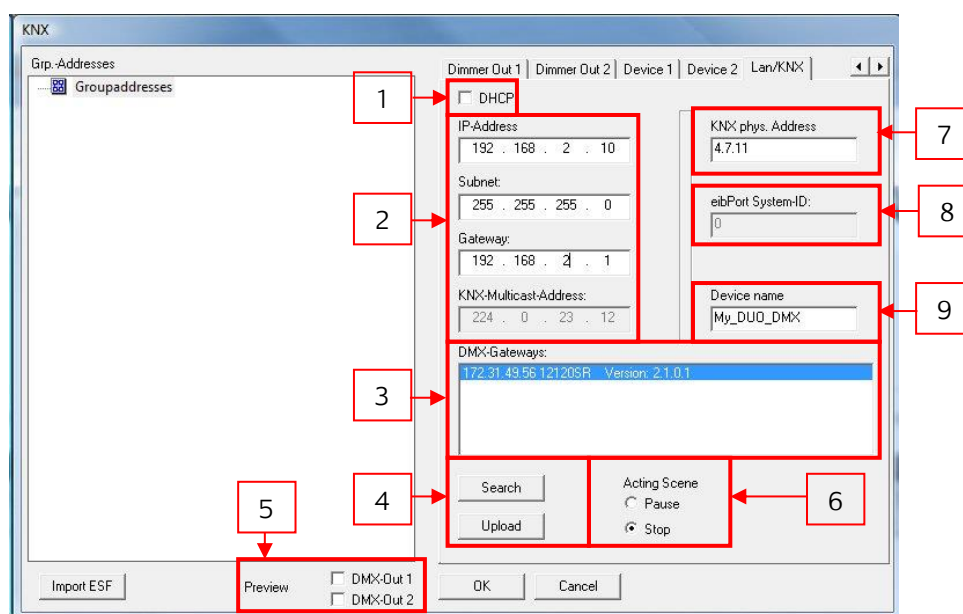The network and KNX-specific settings are performed on the "*LAN/KNX*" tab.

Figure 40: Extension DUODMX GATEWAY "KNX"

1. Activate/deactivate DHCP.

2. IP address setting and KNXnet/IP (routing) multicast group.

3. List of the DUO**DMX** GATEWAYs located in the network. This is updated by clicking on the "Search" button. The respective gateway is displayed with its IP address, the assigned name and current firmware version number (since firmware version 2.0.0.1). If no name has yet been assigned to the device, its MAC address is displayed. With a mouse click, a device can be marked for uploading of configuration data or activation of the Unicast preview.

4. By using the "*Search*" function, all DUO**DMX** GATEWAYs present in the network are displayed. If the required device is marked in the list and the "*Upload*" button is clicked, all current configuration data is transmitted to the device via the network (PC and DUO**DMX** GATEWAY must be located in the same network).

5. At this point, it is decided for which of the two DMX interfaces the Preview is to be activated. The Preview is generally not activated until one of the boxes has been checked ("*Broadcast Preview*"). If a device in the "*DMX Gateways*" list is additionally marked, the Preview applies only to this device ("*Unicast Preview*"). In this case, the PC and the Gateway must be located in the same network area (subnet). (See also the section on "*Activating the DMX preview*").

6. Determines how an initiated scene behaves if a telegram with the value "*0*" is sent to its linked group address. If "Pause" is set, the scene in progress is stopped and will resume again at this point when it is triggered again. If "Stop" is set, the scene starts again from the beginning when it is triggered again.

7. Assign a physical address for the KNX versions of the device.

8. The EIB**PORT** System ID is permanently set to the default value "*0*". This value must be specified when creating the system coupling job (BMX protocol) in the EIB**PORT** and is only of interest to the "*Extension*" version of the gateway. (See section "*Extension device version*").

9. Here you can assign every device a unique name. This name is displayed in the "*DMX Gateways*" list instead of the MAC address.

5.3.3 „KNX / BMX MASTER / SLAVE" CONFIGURATION

If, in the case of the DUO**DMX** GATEWAY, it concerns a KNX or Extension device with integrated master/slave function "SR" (send/receive), the bus type "KNX/BMX" must be selected in the device selection.
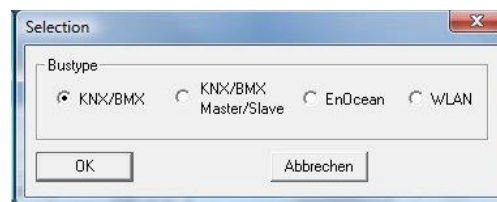
Figure 41: device selection "KNX/BMX Master/Slave

This applies to the following device types:

- 12100 DUO**DMX** GATEWAY Extension SR
  Communication (sending/receiving) via the BMX protocol (network-based) of the EIB**PORT**. See section on "*Extension device version*".

- 12110 DUO**DMX** GATEWAY KNXnet/IP SR
  Communication (sending/receiving) via the KNXnet/IP protocol (network-based).

- 12120 DUO**DMX** GATEWAY KNX/TP SR
  Communication (sending/receiving) via KNX Twisted Pair (wire pair bus).

In every case, the communication is performed by means of KNX group addresses; only the transmission path of the telegrams differs. The configuration window for these device types differs only slightly from that of the KNX/BMX configuration.

5.3.3.1　SPECIAL FEATURES OF MASTER / SLAVE FUNCTION

In the device versions ending with "SR" there is the possibility of operating one or both DMX interfaces not only as a DMX Master (sending) but also as a DMX Slave (receiving). For this reason there are checkboxes on the "LAN/KNX" tab (only after selecting the correct device version, see above) for setting the operating mode of the DMX interfaces separately from one another.
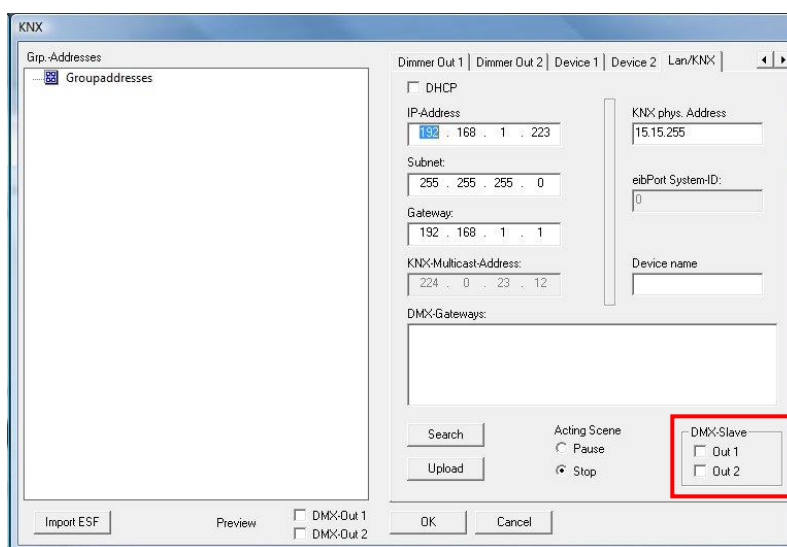

Figure 42: Configuration for DMX-Slave

By checking a box, the corresponding DMX interface is switched to slave mode.

BEHAVIOUR OF THE COMMUNICATION OBJECTS FOR STATUS FEEDBACK

In order to receive the DMX channel values as KNX telegrams in slave mode, the corresponding channel of the DMX interface in slave mode must be allocated a corresponding group address. Only the following communication objects of the dimmer channels ("Dimmer Out 1" and "Dimmer Out 2") are relevant for this:

- 1 bit: DPT 1.001 (switch EIS 1), value: [0.1]
- 1 byte: DPT 5.001 (EIS 6 percent), value [0 – 100%, step size 0.4%]

If therefore, as in the example above, the DMX interface 2 is configured as a slave, both communication objects of the corresponding DMX channel in "Dimmer Out 2" can be linked with the addresses for the status feedback.
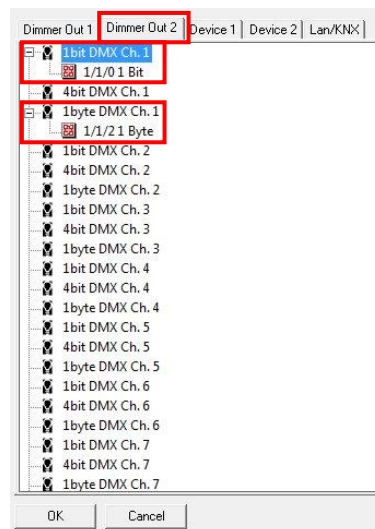
Figure 43: Link to an address for status feedback

Note: If you configure one DMX interface as a DMX master and one as a DMX slave, please note that not transmission takes place not only on the 1 byte group address of the configured DMX slave interface (the actual value incoming from DMX), but also on the 1 byte communication object of the sending channel (the current value of the communication object).

5.3.3.2   GROUP ADDRESS MANAGEMENT

See section "*Configuration for "KNX/BMX"*".

Setting up group addresses in the DMX configurator

See Section "*Configuration for "KNX/BMX"*".

Using ESF data import
See Section "*Configuration for "KNX/BMX"*".

5.3.3.3   GROUP ADDRESS LINKING

See Section "*Configuration for "KNX/BMX"*".

Linking of the scenes ("Scene out")
See Section "*Configuration for "KNX/BMX"*".

Linking of the DMX channels ("Dimmer out")
See Section "*Configuration for "KNX/BMX"*".

Linking with predefined devices ("Device")
See Section "*Configuration for "KNX/BMX"*".

5.3.3.4   LAN/KNX

See Section "*Configuration for "KNX/BMX"*". The configuration differs here only in terms of the additional parameters for DMX master / slave (see above)

5.3.4 „ENOCEAN" CONFIGURATION

If, in the case of a DUO**DMX** GATEWAY to be configured, it concerns a device with built-in EnOcean transceiver, the option "EnOcean" must be selected in the device selection. The selection applies to the following device types:

- 12030 DUO**DMX** GATEWAY EnOcean
  Control is by means of EnOcean radio profiles.

Figure 44: device selection "EnOcean"

5.3.4.1 LINKING OF ENOCEAN PROFILES

In the left half in the "*transmitter*" will be displayed all from the gateway received EnOcean profiles be listed. The profiles will be displayed with their EnOcean specific names. With two clicks (note: Not double-click) on the profile name will be a renaming possible. Give the profile a name such as "*Switch_Wippe1_ON*" to assign it better later on.
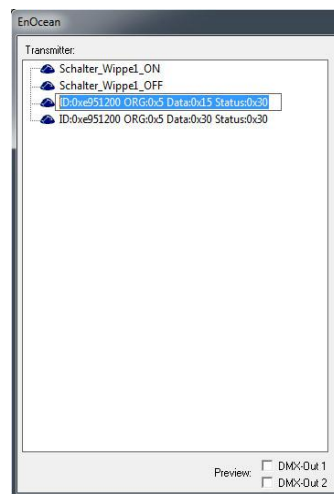
Figure 45: EnOcean Configuration – naming of profiles

The DUO**DMX** GATEWAY in the EnOcean variant, supporting the profiles" ORG0x5 ". These profiles correspond e.g. Touch sensors or window handles. To delete a received profile delete from the list, it must be marked and removed with the "*Del*" key. If the profiles are named in this way and light scenes are set up with the aid of the *DMX configurator* (see Section "*Creating scenes*"), the profiles are simply dragged and dropped onto the required channels or scenes.

Figure 46: EnOcean – Linking of scene

LINKING THE SCENES

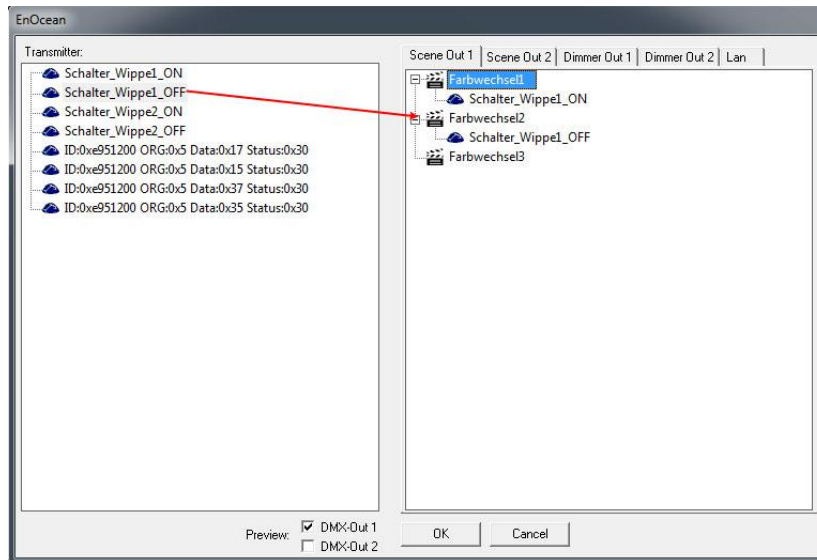In case of EnOcean the scenes will be launched and stopped with the same profile. That means one rocker switch can start and stop (or pause) two different scenes. The behavior of the scenes in a "*stop*" message is in the tab "*LAN/EnOcean*" can be determined.

More than one profile can be linked to a scene. To delete a link, it is enough to mark it and then press the "Del" key.

LINKING DMX CHANNELS

To link the DMX dimming channels in the DMX outputs directly with EnOcean profiles both profiles of a rocker switch must be linked to each channel.
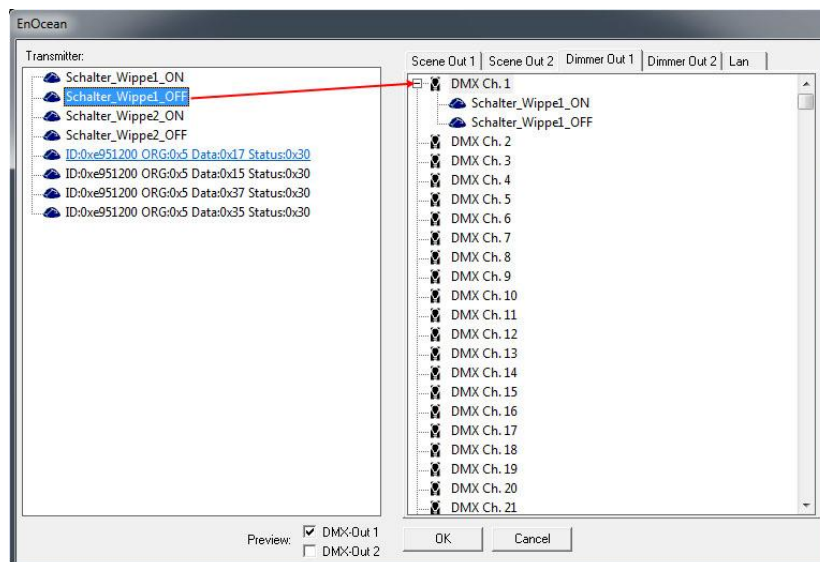

Figure 47: EnOcean – linking of DMX channels

The DUO**DMX** GATEWAY detects a dim-signal when a rocker switch is pressed for longer than 500ms, and ended it as soon as the button is released. The dimming up is done by holding the "ON" switch of the rocker, the dimming down by holding the "OFF" switch.

5.3.4.2   LAN/ENOCEAN

For the description regarding network settings, search function, behaviour of scenes and device name, please refer to Section "*LAN/KNX*" (see above).

SPECIAL FEATURE OF LAN/ENOCEAN CONFIGURATION

A peculiarity of the DUO**DMX** GATEWAY EnOcean variant is that in addition to its gateway functionality it also provides a repeater function. The device repeats all EnOcean signals that it receives again and therefore amplifies the range of the signal. There are two choices
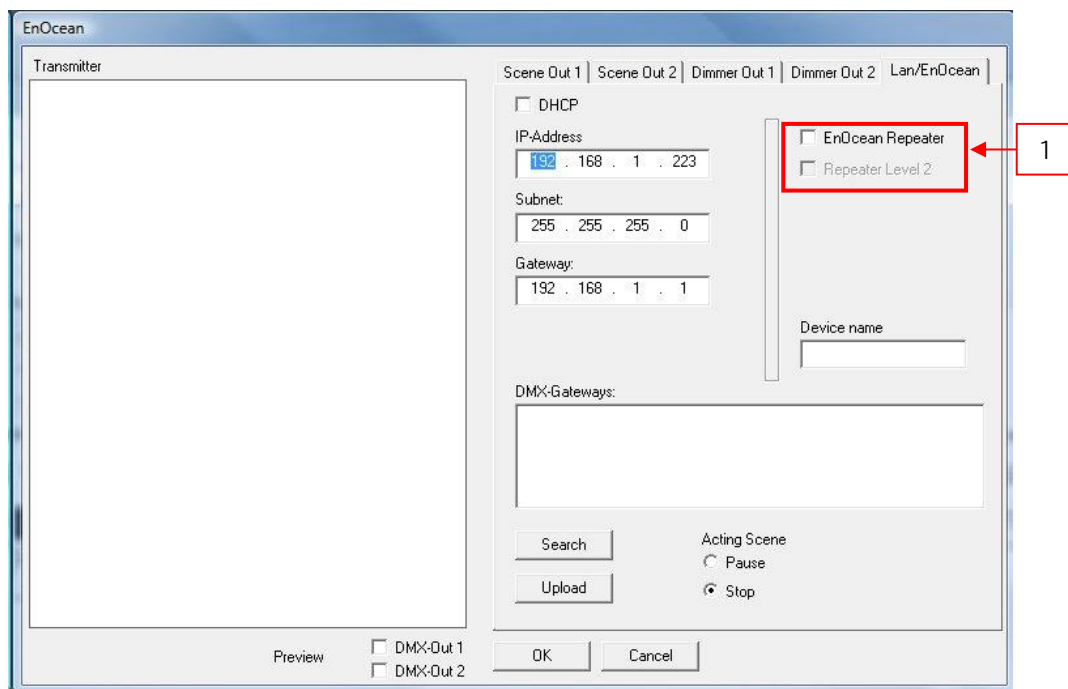
Figure 48: EnOcean Extension - Repeater Functionality

1. Check boxes to activate the repeater EnOcean function.

EnOcean repeaters
The unit will repeat all received EnOcean radio signals with a lower transmission power. In a system with several repeaters thus prevent that a signal is repeated twice.

Level 2 Repeater
The unit will repeat the signals at full transmission power. Should only be used, if it is ensured that the repeated signal does not reach a second repeater.

5.3.5   „WLAN" CONFIGURATION

If, in the case of a DUO**DMX** GATEWAY to be configured, it concerns a device with built-in wireless LAN module, the option "WLAN" must be selected in the device selection. The selection applies to the following device types:

- 12040 DUO**DMX** GATEWAY Standalone
  Control is via the wireless network using an iOS or android app.

Figure 49 device selection - WLAN

Device versions are not yet available!

5.3.6   CHANGING THE IP ADDRESS CONFIGURATION

In order to change the IP address settings of a device that has already been put into service (without changing the subnet mask), proceed as follows:

Note: If the IP address configuration is to be fundamentally changed, the configuration change must be performed using an SD card. See Section "*Initial commissioning*".

- When selecting "*KNX/BMX*" and "*KNX/BMX master/slave*" on the "*Lan/KNX*" tab, switch to the "*Lan/EnOcean*" tab when selecting "*EnOcean*" and to the "*WLAN*" tab when selecting "*WLAN*". The diagram below shows a sample configuration for "*KNX/BMX*".

- Below the "*DMX Gateways*" field, click on the "*Search*" button. This displays all DUO**DMX** GATEWAYs to be found in the network, regardless of the IP addresses of the local PCs.
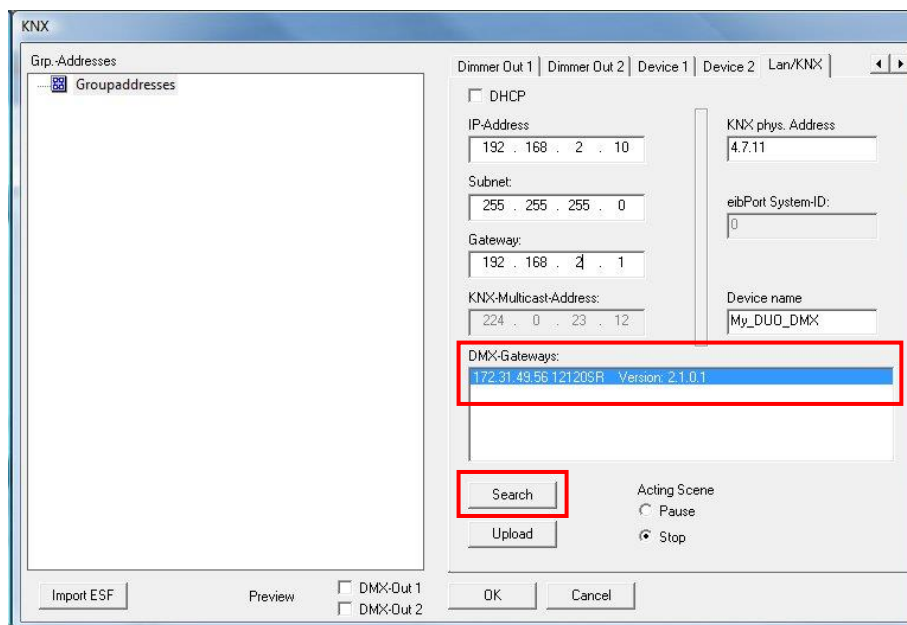

Figure 50: DMX-Configurator - Window Lan/KNX

Note: If the device still does not appear in the list after you have clicked on the "Search" button, there is probably a problem with your network configuration (e.g. firewall / router settings), or

you have activated two network cards simultaneously. Please carry out the necessary checks. If you are in any doubt, please contact BAB Technology Support.

- Check the IP address of the gateway that is set in the "DMX Gateways" window.

- In order to provide the DUO**DMX** GATEWAY with a new configuration, you must adapt the address area of your PC where necessary, so that it matches the address area of the DUO**DMX** GATEWAY.

Note: Configuration data can only be transferred if the DUO DMX GATEWAY and PC are located in the same network area (subnet)!

- Open the network settings of your computer (Example: Windows 7), and give your computer an IP address in the subnet of the DUO**DMX** GATEWAY.
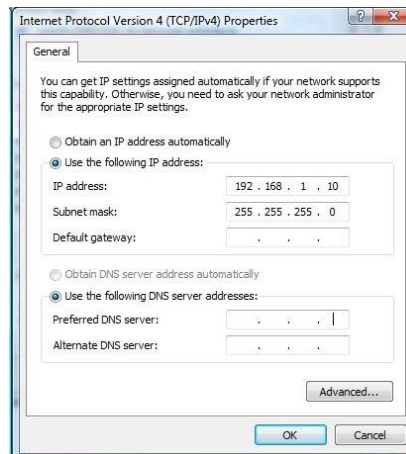

Figure 51: Windows - Network Settings

- Switch to the "*Lan/KNX*", "*Lan/EnOcean*" or "*WLAN*" tab and change the IP address settings according to your requirements.
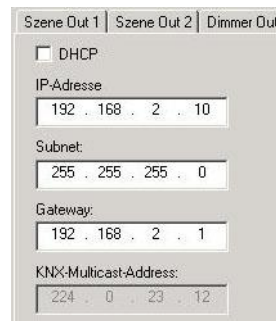
Figure 52: DMX-Configurator - IP-Adressen Settings

- When requested, assign a name to the device.

- Switch back to the window of the *DMX configurator* and mark the required device in the "*DMX Gateways*" list. When you click on "*Upload*", the current settings are transferred from the *DMX Configurator* to the DUO**DMX** GATEWAY. A successful transmission is confirmed with the message "*Upload done*". Otherwise, you receive an error message. Check the network settings of PC and DUO**DMX** GATEWAY one more time.

Figure 53: DMX-Configurator – configuration transfer

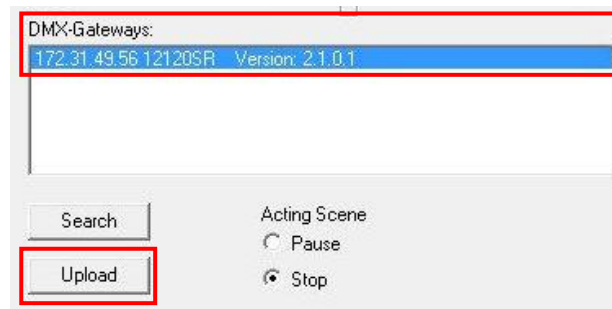- Then exit the "*Lan/KNX*", "*Lan/EnOcean*" or "*WLAN*" window by clicking "*OK*" and save the current settings via the menu option "*File*" – "*Save as*" as project file "*.dx1*". Please use this project file for the subsequent project setup.
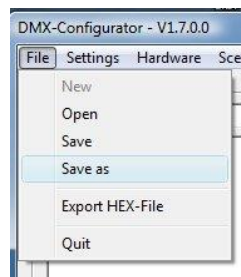

Figure 54: DMX-Configurator – save project

Note: If you would like to use a new or different project, please note the IP address settings. The factory settings for the IP address will appear again in every new project. In the case of a new "Upload" without changing the settings, the device would receive the new IP address settings.

5.3.7 TRANSFER OF CONFIGURATION DATA

The configuration data can be transmitted over the network or via an SD card. The configuration data contains:
- All DMX-relevant data (scenes, channels, devices)
- All links
- IP addresses and configuration data

The one exception are the settings for the "DMX Preview".

5.3.7.1 TRANSFER VIA NETWORK

To transfer the data over the network to the device may have to face the PC and DUO**DMX** GATEWAY in the same area network (subnet). If necessary, change the network settings of your PC before. See *capture "CHANGING THE IP ADDRESS CONFIGURATION")*

To transfer configuration data via the network, proceed as follows:
- When selecting "*KNX/BMX*" and "*KNX/BMX master/slave*" on the "*Lan/KNX*" tab, switch to the "*Lan/EnOcean*" tab when selecting "*EnOcean*" and to the "*WLAN*" tab when selecting "*WLAN*". The diagram below shows a sample configuration for "*KNX/BMX*".
- Below the "*DMX Gateways*" field, click on the "*Search*" button. This displays all DUO**DMX** GATEWAYs to be found in the network, regardless of the IP addresses of the local PCs.
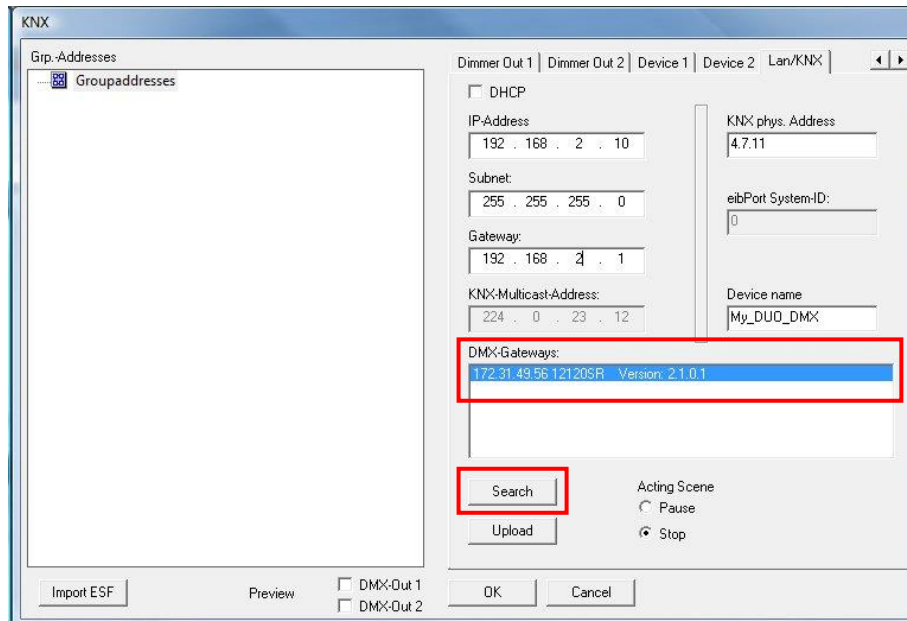
Figure 55: DMX-Configurator - Windows LAN/KNX

Note: If the device still does not appear in the list after you have clicked on the "Search" button, there is probably a problem with your network configuration (e.g. firewall / router settings), or you have activated two network cards simultaneously. Please carry out the necessary checks. If you are in any doubt, please contact BAB Technology Support.

- Now mark the required device in the "*DMX Gateways*" list. When you click on "*Upload*", the current settings are transferred from the *DMX Configurator* to the DUO**DMX** GATEWAY. A successful transmission is confirmed with the message "*Upload done*". Otherwise, you receive an error message. Check the network settings of PC and DUO**DMX** GATEWAY one more time.

Figure 56: DMX-Configurator - configuration transfer

Note: Due to the "*Upload*" will not save the configuration data. If you close the DMX-Configurator, all changes made are lost.

5.3.7.2 TRANSFER VIA SD-CARD

In addition to storing as DMX project file each project can also be exported as a so called "HEX file" too. This file format is required to transmit the configuration data to the DUO**DMX** GATEWAY. This configuration file must always have the same name ("config.par") so that the DUO**DMX** GATEWAY reads and recognizes them as such. The green "Power" LED sheds light on the state of charge (as long as the LED is off , the file is being read). A configuration file is created as follows (after the project is saved as *.dx1 file.)

- Open the menu "*File*"> "*Export Hex File*"
- Save the HEX file with a unique name in the appropriate folder
- Create a folder on your hard drive for the "*config.par*" file
- Then copy the generated HEX file into the folder and rename it in to "*config.par*"
- Insert the SD card into the card reader and move the new "*config.par*" on the SD card
- Insert the SD card into the slot of the DUO**DMX** GATEWAY and wait until the green LED lights up again. Ready.

6   FIRMWARE UPDATE

To update the firmware of the DUO**DMX** GATEWAY, please proceed as follows:

- Use a blank SD card and copy the latest firmware file on it. The firmware file must be named "*dmxknx.fir*".
- Unplug the DUO**DMX** GATEWAY from the power supply and insert the SD card into the SD card slot.
- Press the "*button*" and hold it down while you connect the power supply again.
- Wait until the LED of the DUO**DMX** GATEWAY has stopped to flicker and then release the button.
- Remove the SD card and start the machine again by separation of the supply voltage.
- After a successful reboot is the device works with the latest firmware.

7 DEVICE TYPE „EXTENSION" (EIBPORT EXTENSION)

If the DUO**DMX** GATEWAY is used as an extension for EIB**PORT**, both devices are "talking" about EIB**PORT** own BMX protocol. For this is the job of EIB**PORT** "linking facilities" is used. In the following the necessary steps will be described.

7.1 CHECK/SET COMMUNICATION PARAMETERS

The BMX protocol used for communication either TCP or UDP. In this case, the communication over UDP (User Datagram Protocol) is used. Thus the sender (EIB**PORT**) and receiver (DUO**DMX** GATEWAY) can , "*talk*" together, they must communicate over the same port number.

BMX Port
Cause in the DUO**DMX** GATEWAY the port number cannot be changed it must be set correctly in the EIB**PORT**. About the "*System*" - "*Configuration*" - "*Advanced EIB (yabus) Settings*" check the port number in EIB**PORT**.
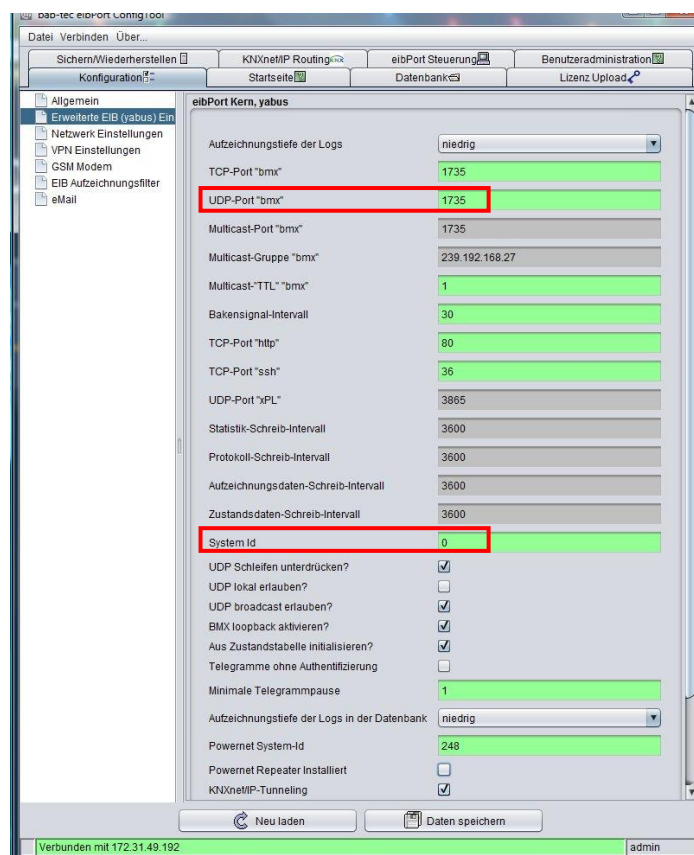

Figure 57: EIBPORT Communication Parameter

The correct port number is "1735". This number is the default of EIB**PORT**, but because this number can be changed it should be checked before.

System ID

In addition, for the facilities coupling a so-called "*System ID*" is used. That's a number from 0-255 and is used -in the case of the facility coupling - to differ coupled KNX facilities from each other in virtual plants. For the DUO**DMX** GATEWAY the EIB**PORT** has to have the system ID "0". The system ID is set under "*System*" - "*Advanced EIB (yabus) Settings*" - "*Configuration*".

Network settings

EIB**PORT** and DUO**DMX** GATEWAY must not be in the same network area for communication. The control can (with appropriate firewall - configuration) also take place over the internet.

7.2   EIBPORT JOB „LINKING FACILITIES"

If the messages should be transferred over the BMX protocol to the DUO**DMX** GATEWAY the "*linking facilities*" job is used. This job is also described in the documentation of EIB**PORT**. Important communication parameters are

Figure 58: EIBPORT Job – Linking Facilities

Host name / IP address

Enter the IP address of the DUO**DMX** GATEWAY. If the communication is done via the internet here a DynDNS address entered.

connection Type

It is used for the direct connection via LAN ("direct (LAN)")

Target system ID
Determines to which system ID the packet should be sent. Because the DUO**DMX** GATEWAY ID "0" is set by default, must be "0" set here.

Regulate
You can decide with the help of rules which addresses are transmitted. All addresses, only a single address or only selected areas are used.

Rule	Meaning
/ -> */*	All main and sub groups of the EIB-Installation 1 will be coupled 1:1 to EIB-Installation 2.
6/* -> 6/*	All group addresses from main group 6 of EIB-installation 1 will be coupled 1:1 with main group 6 of the EIB-installation 2
7/* -> 17/*	All group addresses of main group 7 of the EIB-installation 1 will be coupled with the virtual main group 17 of the EIB-installation 2 ▪ In this case no eib address overlapping is possible within installation 2
*/1 -> */1	Addresses 0/1; 1/1; 2/1…32/1 are coupled directly with EIB -installation 2

Using these rules it is possible to map group addresses. In case of the DUO**DMX** GATEWAY this makes no sense. On the side of the DUO**DMX** GATEWAY only the addresses which have been linked via the ESF file are working.

7.3   RECEIVING TELEGRAMS IN THE CASE OF DEVICE TYPE "EXTENSION SR"

Telegrams that a DUO**DMX** GATEWAY Extension SR (Art.-No.: 12100) sends to BMX (UDP Port 1735) when activating the slave function are received by the EIB**PORT** without any further action. The DUO**DMX** GATEWAY sends the incoming values from DMX by BMX protocol to the network broadcast address (XXX.XXX.XXX.255 for subnet 255.255.255.0), so that they can be received by all EIB**PORTs** located in the local subnet. The decisive factors here are the IP address settings of the DUO**DMX** GATEWAY. In addition, it should be noted that EIB**PORT** and DUO**DMX** GATEWAY use the system ID "0", as this is preset in the DUO**DMX** GATEWAY.

8   GENERATE ESF DATA

For linking ESF data with the DMX Configurator you have several options.

ESF data from the EIB**PORT device**
Since firmware version 1.0.2 (Version 3) EIB**PORT** opens up the possibility to export its group address to ESF data file. Go to the menu in the "*Editor*" - "*Tools*" - "*ESF Upload & data maintenance*." Insert the wanted addresses in EIB**PORT** and export it as an ESF file.

ESF data from the ETS
To generate the desired data with ETS, you need the application of a device which controls the data types 1bit or 1byte. Linking the addresses you want and export the data as ESF.

ESF file created individually
Look for an existing ESF file, that contains 1it and 1 byte communication object and open it with a text editor. Using the same syntax, you can modify the file so that you comply with your requested addresses and data types.

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