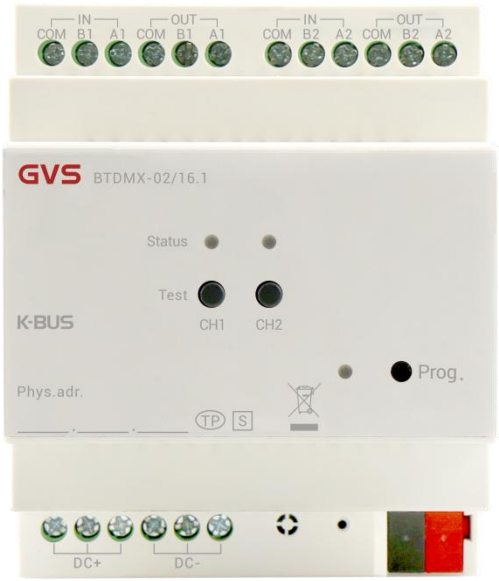
# User Manual

## K-BUS DMX512 Record and Replay with 100Min, 2-Fold_V1.0

**BTDMX-02/16.1**




**KNX/EIB Home and Building Control System**

# Attentions

**1.Please keep devices away from strong magnetic field, high temperature, wet environment;**


**2.Do not fall the device to the ground or make them get hard impact;**


**3.Do not use wet cloth or volatile reagent to wipe the device;**


**4.Do not disassemble the devices.**

# Contents


Chapter 1 Summary ..... 1

Chapter 2 Technical Date ..... 2

Chapter 3 Dimension and Structural Diagram ..... 3

3.1. Dimension Diagram ..... 3

3.2. Structural Diagram ..... 4

Chapter 4 Project Design and Application ..... 5

Chapter 5 Parameter setting description in the ETS ..... 6

5.1. Parameter window “General” ..... 6

5.2. Parameter window “DMX x”（x=1/2） ..... 7

Chapter 6 Description of Communication Object ..... 9

6.1. “General” Communication Object ..... 9

6.2. “DMX x” (x=1/2) Communication Object ..... 11

# Chapter 1 Summary

DMX512 Record and Replay with 100Min, 2-Fold is designed for KNX intelligent building control system.Programs are recorded into the device via a DMX console, after which it can operate independently of the console and play the programs using KNX commands.

This manual provides detailed technical information about the DMX512 Record and Replay with 100Min, 2-Fold, including installation and programming details, and explains how to use it in the practical examples.

DMX512 Record and Replay with 100Min, 2-Fold is a modular mounting device. For easy installation in the distribution box, it can be mounted on a 35 mm D-rail according to EN 60 715. The device is screwed to the electrical connection and the bus connection is directly connected via KNX terminal connections, need a 9-30V DC auxiliary supply voltage. It is available to assign the physical address and configure the parameters by engineering design tools ETS with .knxprod ( support edition ETS5.7 or higher ).

The function of the DMX512 Record and Replay with 100Min, 2-Fold is summarized as follows:

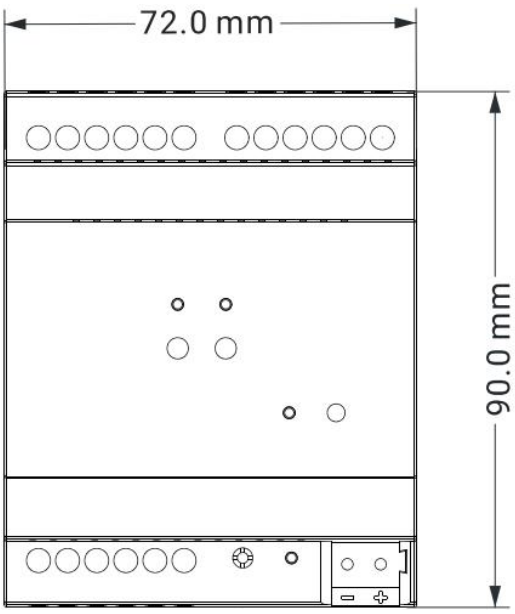
- Support record and replay of program
- Support 2 DMX channels, each channel can connect up to 1 DMX console and 512 DMX devices
- Only supports standard DMX512 protocol
- Up to 16 programs can be set per channel
- Support 2 object types: 1bit, 1byte
- Support looping or single playback
- Each channel can store up to 100 minutes

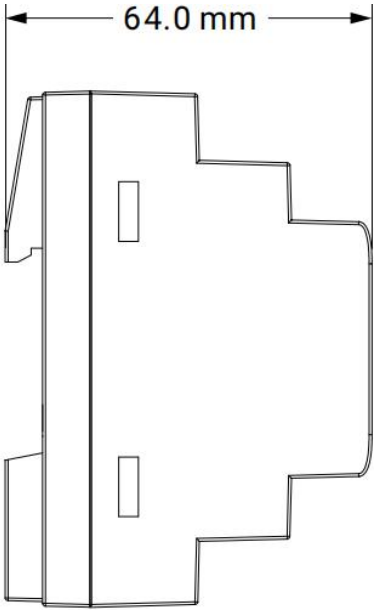
## Chapter 2 Technical Date

| | | |
|---|---|---|
| **Power Supply** | Bus voltage | 21-30V DC, 通过 KNX 总线获得 |
| | Bus current | <6mA |
| | Bus consumption | <180mW |
| **Auxiliary Supply** | Voltage | 9~30V DC |
| | Current | <8.5mA/24V; <7.5mA/30V |
| | Consumption | 0.23W |
| **DMX Output** | 2 Channel | |
| **Connections** | KNX | Bus connection terminal(Red/Black) |
| | Inputs and output | Using screw terminals |
| **Operation and display** | Programming button and Red LED | For assigning the physical address |
| | Green LED flashing | For indicate application layer running normally |
| | Status LED | Flashing: Record/Replay Programs |
| | Test button | Press to replay the first program<br>Note: This requires that the first program has already been recorded. |
| **Degree of protection** | IP 20, EN 60 529 | |
| **Temperature** | Operation | – 5 °C ... 45 °C |
| | Storage | – 25 °C ... 55 °C |
| | Transport | – 25 °C ... 70 °C |
| **Ambient** | Humidity | <93%, except dewing |
| **Dimension/ Weight** | 72 × 90 × 64 mm/0.16Kg | |
| **Mounting** | On 35mm mounting rail | |

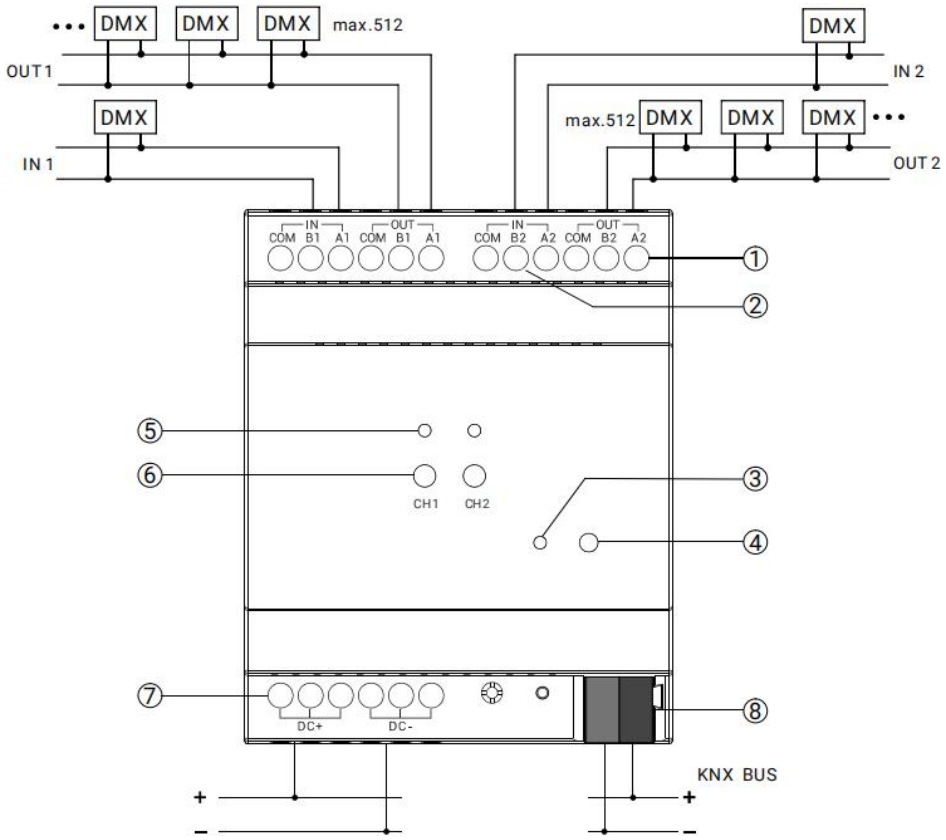
# Chapter 3 Dimension and Structural Diagram

## 3.1.Dimension Diagram



## 3.2.Structural Diagram




① OUT: replay interface, connect to DMX luminaires

② IN: record interface, connect to DMX console

③ Programming LED

④ Programming button

⑤ Status LED

⑥ Test button

⑦ Auxiliary power screw terminals

⑧ KNX bus connection terminal

# Chapter 4 Project Design and Application

| Application | Maximum number of communication objects | Maximum group address | Maximum number of associations |
|---|---|---|---|
| DMX512 Record and Replay with 100Min，2-Fold/1.0 | 266 | 400 | 400 |

**General function**

General function includes device In operation setting, request device status after voltage recovery.

**DMX channel function**

Supports 2 DMX channels, each channel can connect up to 512 DMX devices. It enables program recording and replay, allowing a maximum of 16 programs to be set and 100 minutes of recording per channel. The optional data types are 1bit or 1byte, and supports looping or single playback.

# Chapter 5 Parameter setting description in the ETS

## 5.1.Parameter window “General”

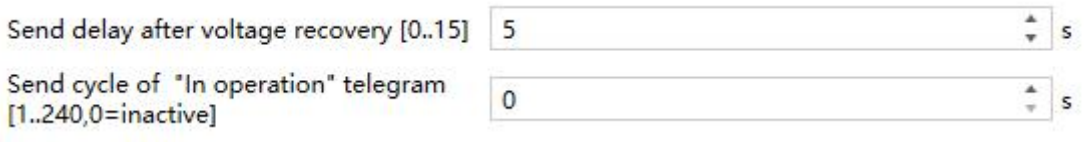



Fig.5.1.1 “General” Parameter window

**Parameter“Send delay after voltage recovery [0..15]”**

This parameter is for setting the delay time to send to bus after the device voltage recovery. Options: **0..15**

The setting dose not contain the device initialization time, and bus telegrams received during delay time will be recorded.

**Parameter“Send cycle of "In operation" telegram [1..240,0=inactive]”**

This parameter is for setting the time interval when this device cycle send telegrams through the bus to indicate this module in normal operation. When set to “0”, the object “in operation” will not send a telegram. If the setting is not “0”, the object “In operation” will send a telegram according to the set period time with logic “1” to the bus. Options: **0...240s, 0= inactive**

As to reduce the bus load as much as possible, the maximum time interval should be selected according to actual needs.

## 5.2.Parameter window “DMX x” （x=1/2）

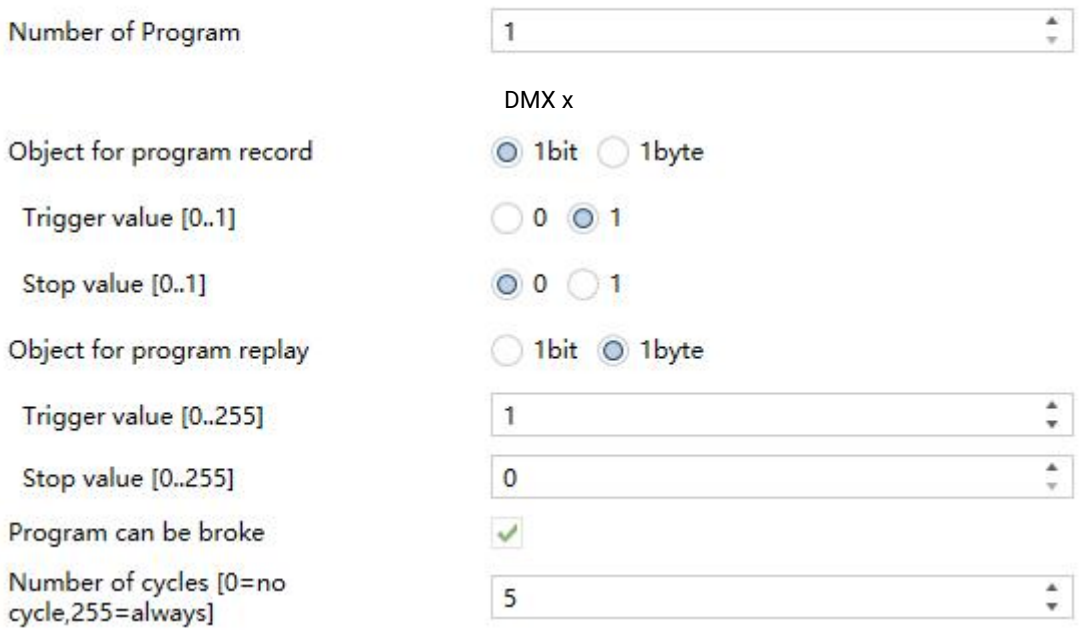



Fig.5.2.1 “DMX x” Parameter window

**Parameter“Number of Program”**

This parameter is for setting the number of program.Options:**1..16**

**Parameter“Object for program record”**

**Parameter“Object for program replay”**

These parameters are for setting the object for program record and replay. Options:

**1bit**

**1byte**

**Parameter“Trigger value [0..1]”**

**Parameter“Trigger value [0..255]”**

These parameters are for setting the values that trigger program recording/replay.

When “1bit” is selected, Options:**0/1**

When “1byte” is selected, Options:**0..255**

**Parameter“Stop value [0..1]”**

**Parameter“Stop value [0..255]”**

These parameters are for setting the values that stop program recording/replay.

When “1bit” is selected, Options:**0/1**

When “1byte” is selected, Options:**0..255**

**Parameter"Program can be broke"**

This parameter is for setting whether a program can be broke. When enabled, receiving a new trigger telegram will be broke.

**Parameter"Number of cycles [0=no cycle,255=always]"**

This parameter is for setting the number of cycles for a program.

Options:**0..255(0= single, 255= looping)**

# Chapter 6 Description of Communication Object

The communication object is the medium to communicate other device on the bus, namely only the communication object can communicate with the bus.

**NOTE: "C" in "Flag" column in the below table means enable the communication function of the object; "W" means value of object can be written from the bus; "R" means the value of the object can be read by the other devices; "T" means the object has the transmission function; "U" means the value of the object can be updated.**

## 6.1."General" Communication Object

| Num | Name | Object Function | Description | Group | Length | C | R | W | T | U | I | Data Type | Priority |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | General | In operation | | | 1 bit | C | R | - | T | - | - | switch | Low |
| 2 | General:Debug | Play/stop | | | 2 bytes | C | - | W | - | - | - | pulses | Low |
| 3 | General:Debug | Record/stop | | | 2 bytes | C | - | W | - | - | - | pulses | Low |
| 4 | General:Debug | Clear | | | 1 byte | C | - | W | - | - | - | counter pulses (0..255) | Low |
| 5 | General:Debug | Time get | | | 1 byte | C | - | W | - | - | - | counter pulses (0..255) | Low |
| 6 | General:Debug | Play/stop status | | | 2 bytes | C | - | - | T | - | - | pulses | Low |
| 7 | General:Debug | Record/stop status | | | 2 bytes | C | - | - | T | - | - | pulses | Low |
| 8 | General:Debug | Clear status | | | 1 byte | C | - | - | T | - | - | counter pulses (0..255) | Low |
| 9 | General:Debug | Time seconds | | | 2 bytes | C | - | - | T | - | - | time (s) | Low |

Fig.6.1 "General"Communication Object

| NO. | Object Function | Name | Data Type | Flag | DPT |
|---|---|---|---|---|---|
| **1** | **In operation** | **General** | **1bit** | **C,R,T** | **1.001 switch** |
| The communication object is used to periodically send a telegram "1" to the bus to indicate that the device is working properly. | | | | | |
| **2** | **Play/stop** | **General:Debug** | **2bytes** | **C,W** | **7.001 Pulses** |
| The communication object is used to device debugging and receives commands to play or stop programs on the bus. | | | | | |
| **3** | **Record/stop** | **General:Debug** | **2bytes** | **C,W** | **7.001 Pulses** |
| The communication object is used to device debugging and receives commands to record or stop program on the bus. | | | | | |
| **4** | **Clear** | **General:Debug** | **1byte** | **C,W** | **5.010 Counter Pulses** |
| The communication object is used to device debugging and receives commands to clear programs on the bus.<br>0..15 (decimal) corresponds to programs 1–16 on DMX1. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 16..31 (decimal) corresponds to programs 1–16 on DMX2.<br>Writing the corresponding value clears the program number for the corresponding channel. | | | | | |
| **5** | **Time get** | **General:Debug** | **1byte** | **C,W** | **5.010 Counter Pulses** |
| The communication object is used to device debugging and receives commands from the bus to obtain program timing information. | | | | | |
| **6** | **Play/stop status** | **General:Debug** | **2bytes** | **C,T** | **7.001 Pulses** |
| The communication object is used to device debugging and send the status of program play or stop to the bus. | | | | | |
| **7** | **Record/stop status** | **General:Debug** | **2bytes** | **C,T** | **7.001 Pulses** |
| The communication object is used to device debugging and send the status of program record or stop to the bus. | | | | | |
| **8** | **Clear status** | **General:Debug** | **1byte** | **C,T** | **7.001 Pulses** |
| The communication object is used to device debugging and send the status of cleared programs to the bus. | | | | | |
| **9** | **Time seconds** | **General:Debug** | **2bytes** | **C,T** | **7.005 time (s)** |
| The communication object is used to device debugging and send the program total seconds. | | | | | |

Table 6.1 “General”Communication Object

## 6.2.“DMX x” (x=1/2) Communication Object

| Num | Name | Object Function | Descriptio | Group | Length | C | R | W | T | U | I | Data Type | Priority |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | DMX 1 Program 1 | Program record control | | | 1 bit | C | - | W | - | - | - | switch | Low |
| 12 | DMX 1 Program 1 | Program replay control | | | 1 byte | C | - | W | - | - | - | counter pulses (0..255) | Low |
| 13 | DMX 1 Program 1 | Program total second | | | 2 bytes | C | - | - | T | - | - | time (s) | Low |
| 16 | DMX 1 Program 1 | Program play state | | | 1 byte | C | - | - | T | - | - | counter pulses (0..255) | Low |

Fig.6.2 “DMX x”Communication Object

| NO. | Object Function | Name | Data Type | Flag | DPT |
|---|---|---|---|---|---|
| **11** | **Program record control** | **DMX 1 Program 1** | **1bit**<br>**1byte** | **C,T** | **1.001 switch**<br>**5.010 counter pulses** |
| The communication object is used to send the program record control telegram to the bus, the trigger value set according to the parameter “Trigger value”. | | | | | |
| **12** | **Program replay control** | **DMX 1 Program 1** | **1bit**<br>**1byte** | **C,T** | **1.001 switch**<br>**5.010 counter pulses** |
| The communication object is used to send the program replay control telegram to the bus, the trigger value set according to the parameter “Trigger value”. | | | | | |
| **13** | **Program total second** | **DMX 1 Program 1** | **2byte** | **C,W,T,U** | **7.005 time (s)** |
| The communication object is used to calculate the program total seconds. | | | | | |
| **16** | **Program play state** | **DMX 1 Program 1** | **1bit**<br>**1byte** | **C,T** | **1.001 switch**<br>**5.010 counter pulses** |
| The communication object is used to send the program play status to the bus. | | | | | |

Table 6.2 “Internal sensor measurement”Communication Object