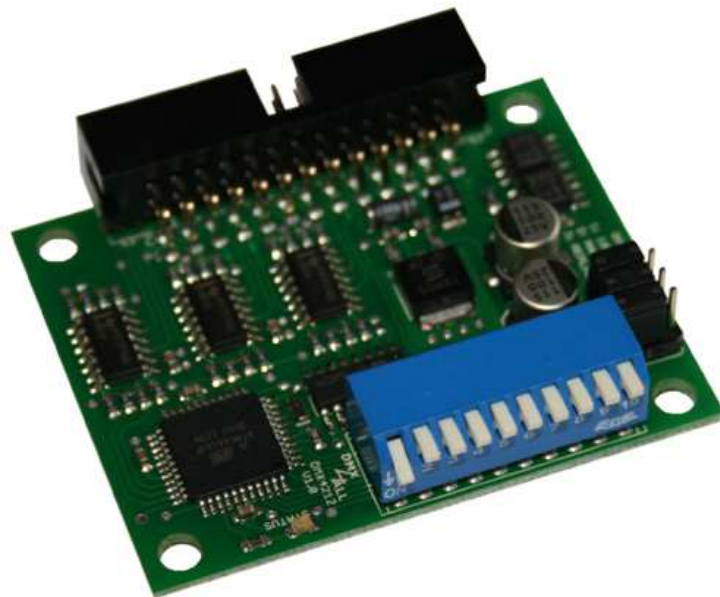# DMX-Multiplexer 12

User Manual



**DMX** ®

**4ALL**

For your own safety, please read this user manual and warnings carefully before installation.

# Content

# Description

The **DMX-Multiplexer 12** converts 12 analog 0-10V or 0-5V input signals into DMX-Values. From the adjusted start address the DMX-Channels are outputted.

 Several DMX-Multiplexer can be connected in a row. At the first multiplexer DMX-IN stays unconnected. DMX-OUT is connected to DMX-IN of the next multiplexer. The start address must be set accordingly; 1 for the first multiplexer, 13 for the second, and so on.

Furthermore the DMX-Multiplexer can be set to digital input signals.
In this mode a DMX-Value of 0 or 255 is outputted. The switch threshold is 50% of the input voltage.

Another mode allows the DMX-Multiplexer to operate as master dimmer.
The DMX-Value is multiplied with the analog input signal and outputted again to the DMX-Output.

# Data sheet

**Power supply:**     12V DC / 100mA

**DMX-IN:**           512 DMX-Channels

**DMX-OUT:**          512 DMX-Channels

**Analog Input:**     12x 0-5V or 0-10V

**Connection:**       26pin pin header

**Dimensions:**       46mm x 58mm

# Connections



| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | Analoginput 1 | 2 | Analoginput 2 |
| 3 | Analoginput 3 | 4 | Analoginput 4 |
| 5 | Analoginput 5 | 6 | Analoginput 6 |
| 7 | Analoginput 7 | 8 | Analoginput 8 |
| 9 | Analoginput 9 | 10 | Analoginput 10 |
| 11 | Analoginput 11 | 12 | Analoginput 12 |
| 13 | 5V (OUT) | 14 | 5V (OUT) |
| 15 | 0V (GND) | 16 | 0V (GND) |
| 17 | Supply voltage 12V | 18 | 0V (GND) |
| 19 | Supply voltage 12V | 20 | 0V (GND) |
| 21 | DMX-IN + | 22 | DMX-OUT + |
| 23 | DMX-IN - | 24 | DMX-OUT - |
| 25 | DMX-IN GND | 26 | DMX-OUT GND |

⚠ Unconnected analog inputs should be connected to 0V (GND).

For the unconnected inputs the DMX-Values are outputted of a value of approximately 100%.

The cable lengths at the inputs should be the length from 20-25cm~ not to exceed.

# LED-Display

The LED-Display signals the operation mode.

### LED flashes

The analog input signals are outputted at the DMX-OUTPUT.
No DMX-Input signal located.

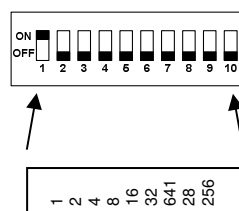### LED shines permanently

A DMX-Input signal is located.

The analog input signals are embedded in the DMX-Signal and outputted at the DMX-Output together with the DMX-Input signal.
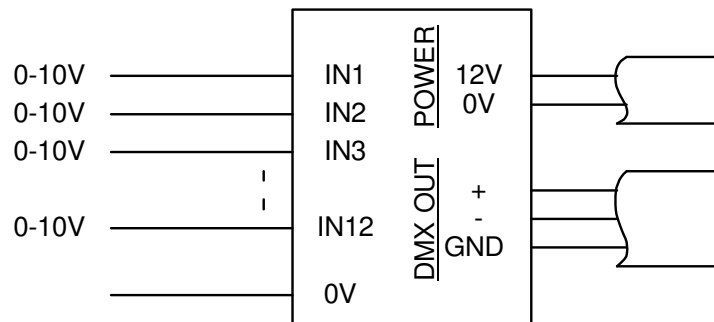
# DMX-Addressing

Die DMX-Startadresse, ab der die Analogwerte ausgegeben werden, wird über die DIP-Schalter 1 bis 9 eingestellt.

Thereby switch 1 has the valency 20 (=1), switch 2 the valency 21 (=2) and so on until switch 9 has the valency 28 (=256). The switches showing ON represent in sum the starting address.
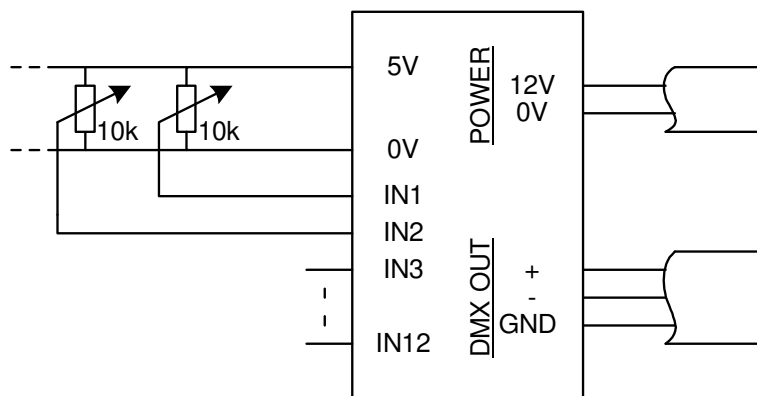
In total all switches showing ON represent the starting-address.

# Operation with external 0-10V voltage

| | |
|---|---|
| 0-10V | IN1 |
| 0-10V | IN2 |
| 0-10V | IN3 |
| | IN12 |
| 0-10V | |
| | 0V |

POWER 12V / 0V

DMX OUT + / - / GND

# Operation with external potentiometer

5V

POWER 12V / 0V

10k   10k

0V
IN1
IN2
IN3

DMX OUT + / - / GND

IN12

Jumper J1 (0-5V) must be set for above connection!

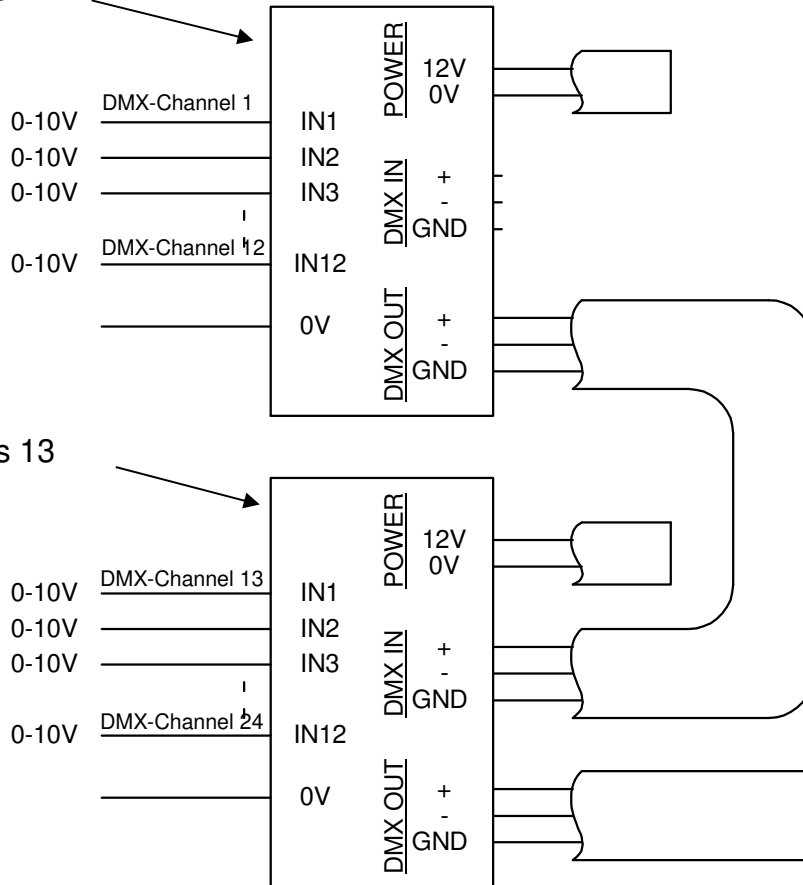# Operation with external switch (Digital signals)

For digital signals at the entry Jumper 2 should be set. This activates a 50% threshold and the output value will be changed between 0% and 100%.
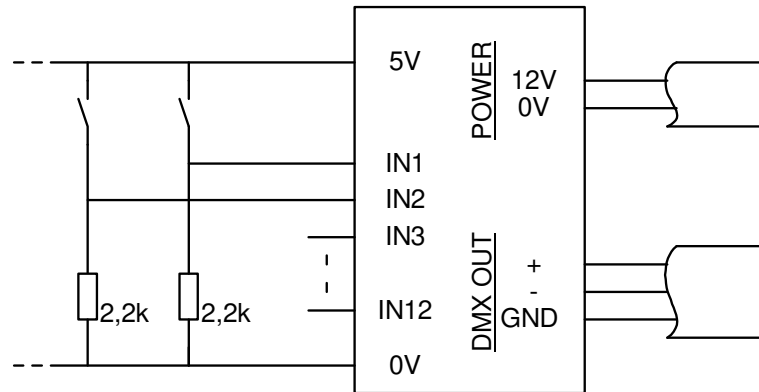


Jumper J1 (0-5V) must be set for above connection!

# Operation with 2 cascaded Multiplexer

Start address 1

| | | |
|---|---|---|
| | POWER | 12V |
| | | 0V |
| 0-10V | DMX-Channel 1 | IN1 |
| 0-10V | | IN2 |
| 0-10V | | IN3 |
| 0-10V | DMX-Channel 12 | IN12 |
| | | 0V |

DMX IN: + - GND

DMX OUT: + - GND

Start address 13

| | | |
|---|---|---|
| | POWER | 12V |
| | | 0V |
| 0-10V | DMX-Channel 13 | IN1 |
| 0-10V | | IN2 |
| 0-10V | | IN3 |
| 0-10V | DMX-Channel 24 | IN12 |
| | | 0V |

DMX IN: + - GND

DMX OUT: + - GND

# Operation as 12 channel Masterdimmer

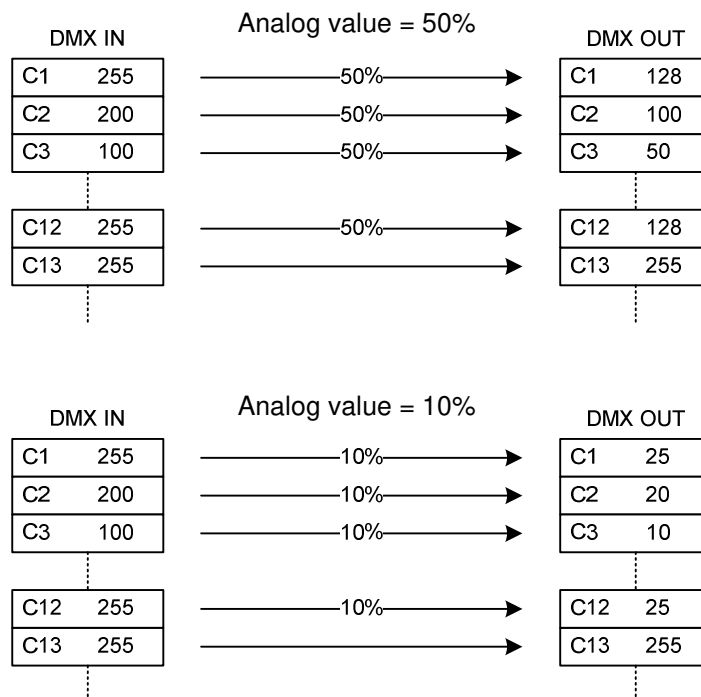The Masterdimmer-Function is activated by setting Jumper J3 (MULTIPLY).

In this case the incoming DMX-Signal will be multiplied with the analog input values and outputted again at the DMX-Output.

The inputs can be used in the 0-10V as well as in the 0-5V Mode.
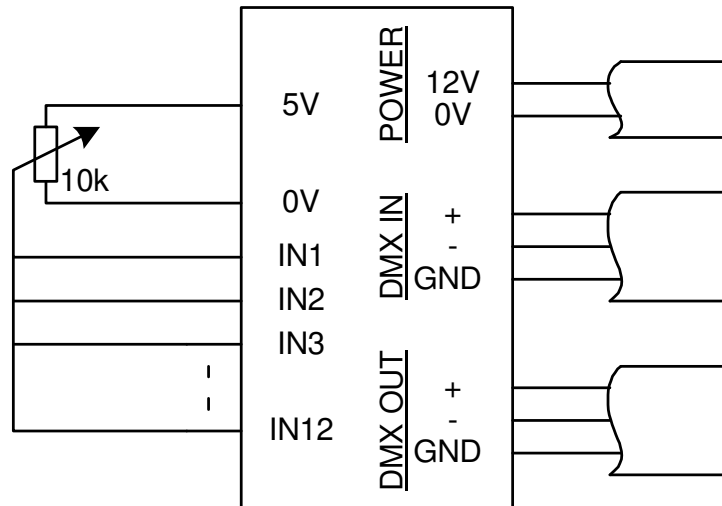


Jumper J1 (0-5V) must be set for above connection!

## Examples with start address 1:



Analog value = 50%

| DMX IN | | | DMX OUT | |
|---|---|---|---|---|
| C1 | 255 | 50% | C1 | 128 |
| C2 | 200 | 50% | C2 | 100 |
| C3 | 100 | 50% | C3 | 50 |
| C12 | 255 | 50% | C12 | 128 |
| C13 | 255 | | C13 | 255 |

Analog value = 10%

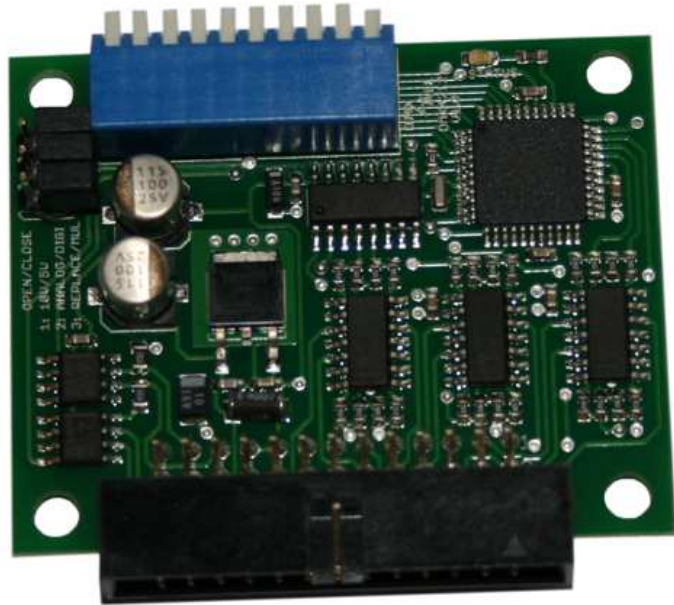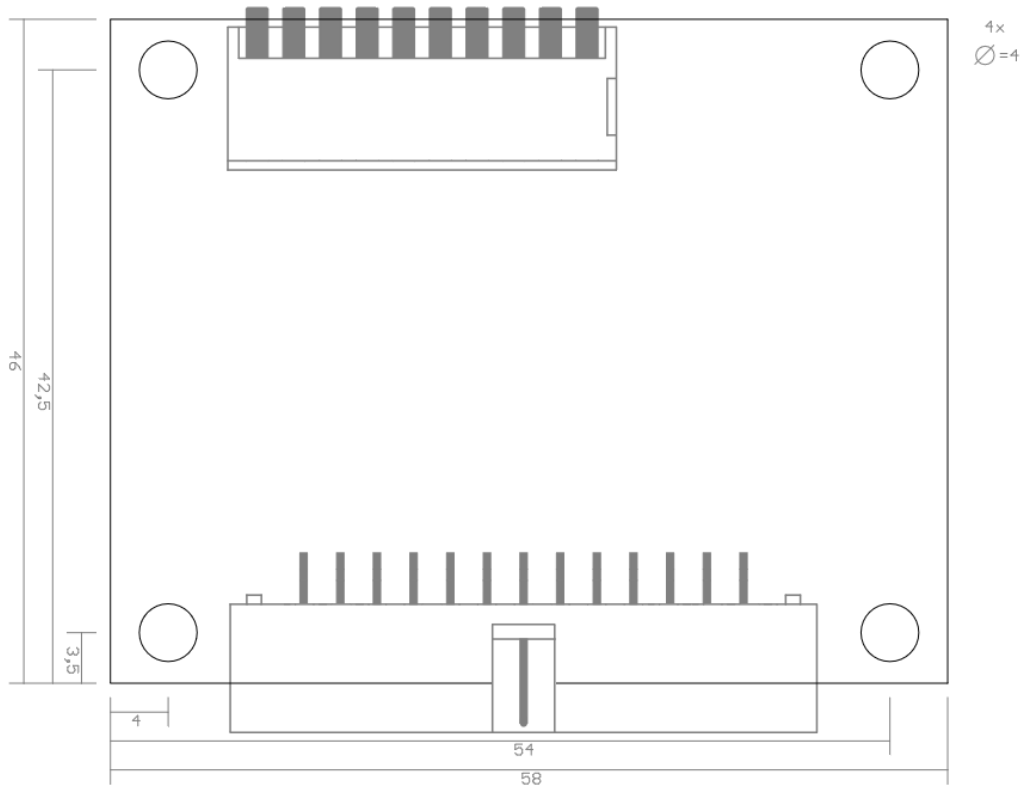| DMX IN | | | DMX OUT | |
|---|---|---|---|---|
| C1 | 255 | 10% | C1 | 25 |
| C2 | 200 | 10% | C2 | 20 |
| C3 | 100 | 10% | C3 | 10 |
| C12 | 255 | 10% | C12 | 25 |
| C13 | 255 | | C13 | 255 |

# Configuration (Jumper)

The configuration for the operating mode occurs via Jumper J1-J3.

The Jumper are combinable and refer to all analog inputs.

J1: 0-10V (OFF) / 0-5V (ON)
J2: ANALOGUE (OFF) / DIGITAL (ON)
J3: REPLACE (OFF) / MULTIPY (ON)

# Dimension



(all details in mm)

# CE-Conformity

This assembly (board) is controlled by a microprocessor and uses high frequency. In order to maintain the properties of the module with regard to CE conformity, installation into a closed metal housing in accordance with the EMC directive 2014/30/EU is necessary.

# Risk-Notes

You purchased a technical product. Conformable to the best available technology the following risks should not excluded:

**Failure risk:** The device can drop out partially or completely at any time without warning. To reduce the probability of a failure a redundant system structure is necessary.

**Initiation risk:** For the installation of the board, the board must be connected and adjusted to foreign components according to the device paperwork. This work can only be done by qualified personnel, which read the full device paperwork and understand it.

**Operating risk:** The Change or the operation under special conditions of the installed systems/components could as well as hidden defects cause to breakdown within the running time.

**Misusage risk:** Any nonstandard use could cause incalculable risks and is not allowed.

**Warning:** It is not allowed to use the device in an operation, where the safety of persons depend on this device.

# Disposal

Electronical and electronic products must not be disposed in domestic waste. Dispose the product at the end of its service life in accordance with applicable legal regulations.
Information on this can be obtained from your local waste disposal company.

# DMX 4ALL ®

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