DMX-Universal-Demux

User Manual
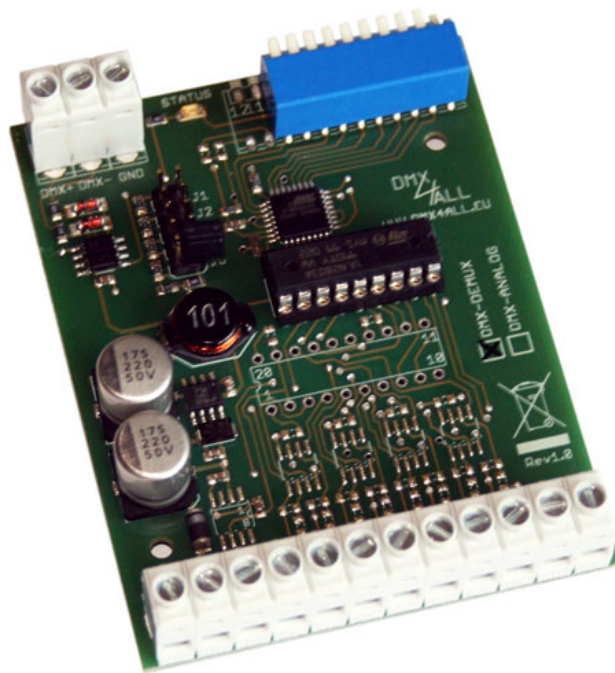

DMX RDM ✓

DMX4ALL ®

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

Contents

Description

The DMX-Universal-Demux is equipped for universal applications with several operation modes. 8 outputs release a signal depending on the DMX-input signal and according to the operation mode.

8 outputs with open-collector driver
There are 8 outputs with open collector output driver for controlling external devices.

Voltages from 12V up to 24V
The DMX-Universal-Demux operates with supply voltages from 12V up to 24V.

Different operation modes
By jumper the operating mode of the DMX-Universal-Demux can be selected.
Available are the operation modes Threshold / Binär / PWM / Servo / Strobo.

Controllable via DMX
The DMX-Universal-Demux is controlled by DMX and uses 1 or 8 DMX channels depending on the operating mode.

DMX FAIL-Function
An adjustable DMX FAIL function offers the option to hold the current state (HOLD) or to change to a predefined value in case of DMX signal failure.

RDM support
The DMX-Universal-DMX allows the configuration via RDM or DMX.

**LED status display**
The LED status display shows the DMX reception.

DIN rail housing available
The DIN rail housing 700 is available as accessory for the DMX-Universal-Demux.

Data sheet

|	
Supply voltage:	7-24V DC
Power consumption:	40mA@12V / 35mA@24V (without load)
Protocol:	DMX512 RDM
DMX channels:	1 or 8 channels (depends on selected mode)
Output:	8 open-collector outputs max. 500mA
DMX-FAIL:	HOLD / 0-100%
Operation mode:	Threshold (switches at 50%) Binary (8-Bit) PWM (~175Hz) Servo Strobo Monostable 1 Second
Connections:	screw terminals
Dimensions:	64,2mm x 82mm

Connection
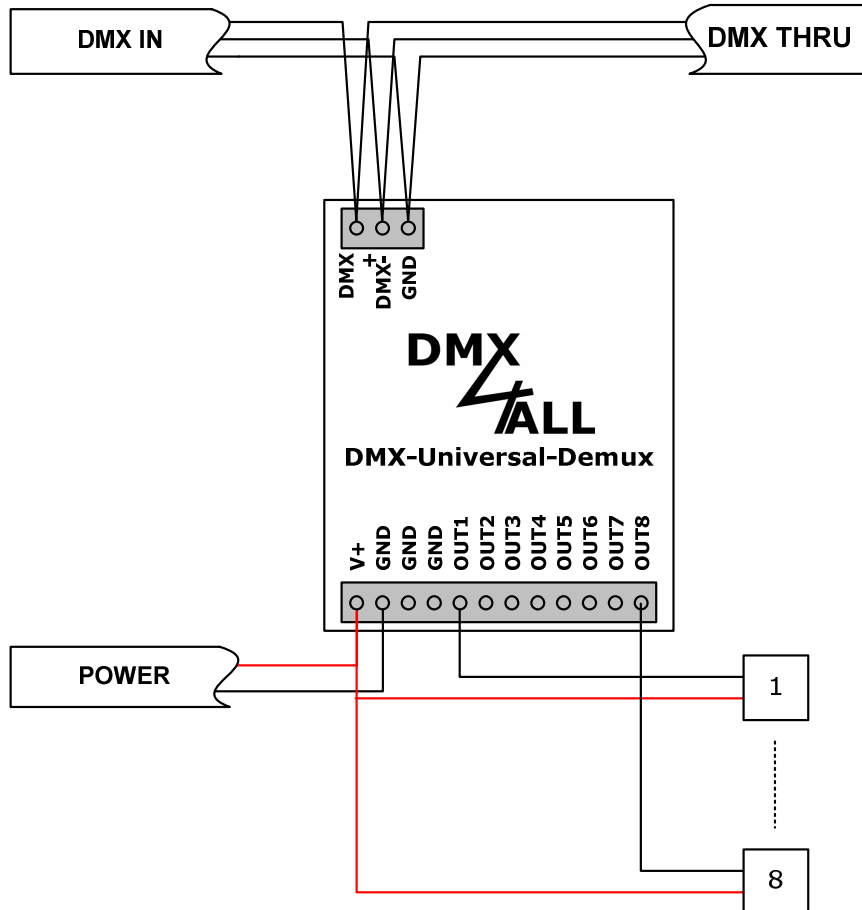
Addressing

The starting address is adjustable via a DIP-Switch.

Switch 1 has the valency 2^0 (=1), switch 2 has the valency 2^1 (=2) and so on… finally switch 9 has the valency 2^8 (=256).

The sum of the values of the switches showing ON, represents the starting address.

Address	Switch		Address	Switch
1			...	...
2			508	
3			509	
4			510	
5			511	
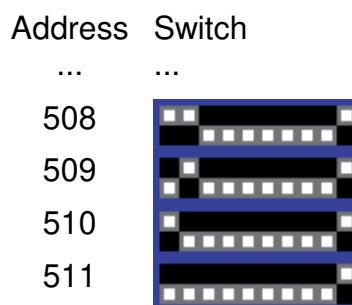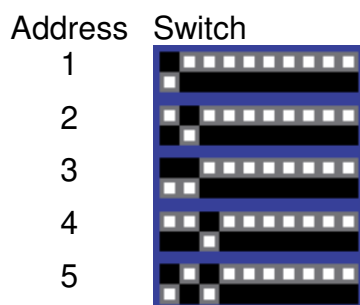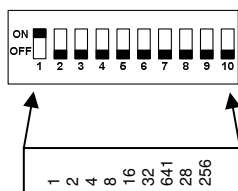
LED-Display

The LED is a multifunctional display.

In the normal operation mode, the LED lights non-stop. In this case the device is working. If the LED is permanently dark, there is no DMX512-input-signal.

Furthermore, the LED signals the operation status. In this case, the LED light up in short pitches and then turns into off modus. The number of flashing signals is equal to the number of the error status:

Error Status	Error	Description
1	No DMX	No DMX-signal existing
2	Address error	Please check the adjusted DMX-Address
4	Factory Reset	Factory Reset is complete

Operation mode

The operation mode is selectable via a jumper. It is important to place the jumper in accordance to the following drawings to ensure a clean function.

It is not possible to combine the modes.

⚠️ With switch 10 the output signal can be inverted in any operating mode.

**Hysteresis 127/128** (no jumper placed)

In threshold mode (hysteresis 127/128) 8 successive DMX channels are received.
The belonging output will be set on OFF if the received value is between 0 and 127 and set on ON if the received value is between 128 and 255.
Thereby output 1 is according to the first and output 8 is according to the last channel.
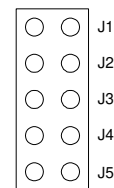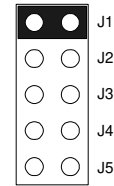
This mode allows switching external load relays.
The following picture shows the connection:
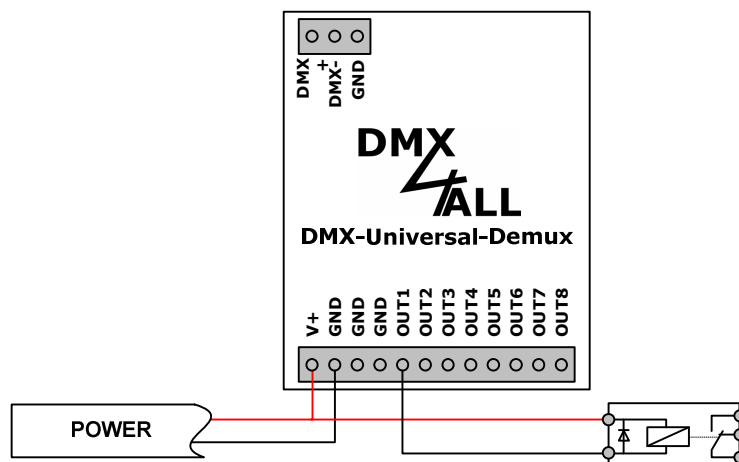
Binary-Output (only jumper J1 is placed)

In the mode Binary-Output (Binary (8-Bit)) only one DMX channel is needed. The received value will be binary outputted at the output. Thereby output 1 is according to the first and output 8 is according to the last bit.

Example: DMX-Value: 77_D = 01001101_B DMX-Value: 219_D = 11011011_B
Output1: ON 01001101_B Output 1: ON 11011011_B
Output 2: OFF 01001101_B Output 2: ON 11011011_B
Output 3: ON 01001101_B Output 3: OFF 11011011_B
Output 4: ON 01001101_B Output 4: ON 11011011_B
Output 5: OFF 01001101_B Output 5: ON 11011011_B
Output 6: OFF 01001101_B Output 6: OFF 11011011_B
Output 7: ON 01001101_B Output 7: ON 11011011_B
Output 8: OFF 01001101_B Output 8: ON 11011011_B

Strobe-Control (only jumper J2 is placed)

The DMX-Universal-Demux outputted 8 controlling signals for stroboscope in the Strobe-Control. Thereby each output will be triggered with one DMX-Channel.
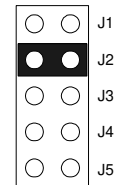
The DMX-Value assignment is as follows:

DMX Channel	DMX Value	Function
1...8	0-10	Stroboscope off
	11-249	Flashing speed slow → fast
	250-255	Synchron flash
Only one time the output will be triggered. Switch back and forth between the DMX-Value 0 and 255 to get a synchronized flashing.

PWM-Output (only jumper J3 is placed)

In the PWM-Mode 8 successive DMX channels are outputted as PWM-Signal. Depending on the DMX-Value the PWM-signal will be generated in a range of 0-100%.

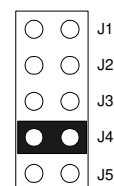T_{ON} T_{OFF}

DMX LEVEL: 64

T_{ON} T_{OFF}
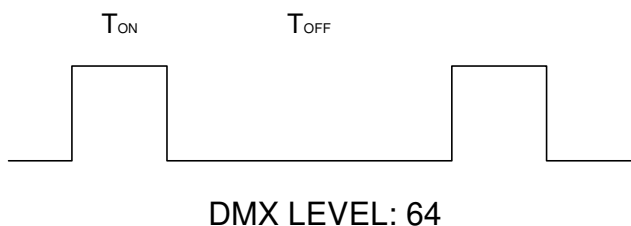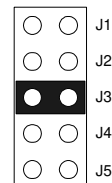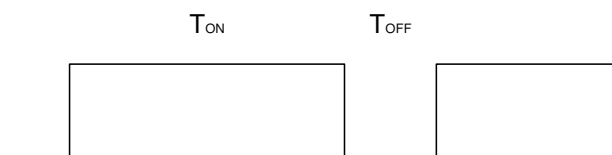
DMX LEVEL: 192

The PWM-Frequency is ca. 175 Hz.

## Servo-Control (only jumper J4 is placed)

The DMX-Universal-Demux receives 8 successive DMX-Channels and outputted a signal for triggering customary servos. Thereby each output will be used to trigger one Servo.

⚠ For operating with Servos is a 5V power supply necessary, in the rule. Please note, for the most Servos an additional resistor is needed which must be connected between the data line and +5V.

⚠ With the DMX-Universal-Demux **with RDM** function it is necessary to set DIP switch 10 to ON to enable operation of the servo.
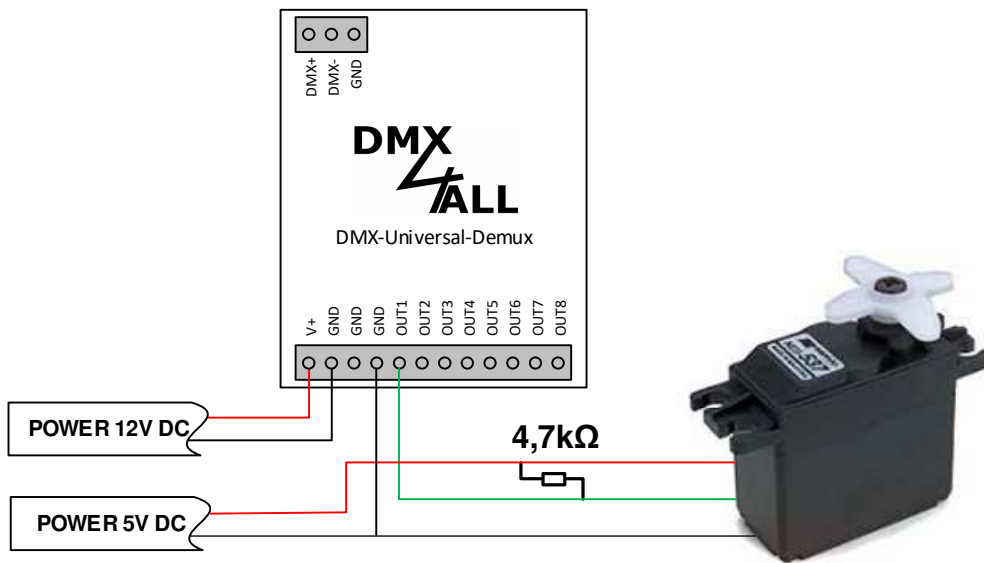
Monostable 1 Second (only jumper J5 is placed)
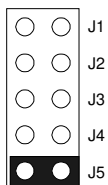
In this mode the outputs switch on for 1 second as soon as the DMX value is 170 or higher. After that the DMX value must fall below 85 again to trigger a switching pulse again.

DMX channel	DMX value	Function
1…8	0-170	Output OFF
	171-255	Output 1x 1-Second ON

For this mode please select Personality 5 via RDM or close only MODE jumper 5:

RDM

(from hardware V1.3)

RDM is the short form for **R**emote **D**evice **M**anagement.

As soon as the device is within the system, device-dependent settings can occur remotely via RDM command due to the uniquely assigned UID. A direct access to the device is not necessary.

⚠️ If the DMX start address is set via RDM, all address switches at the DMX-Universal-Demux must be set to OFF ! A DMX start address set by the address switches is always prior !

This device supports the following RDM commands:

Parameter ID	Discovery Command	SET Command	GET Command	ANSI/ PID
DISC_UNIQUE_BRANCH	✓			E1.20
DISC_MUTE	✓			E1.20
DISC_UN_MUTE	✓			E1.20
DEVICE_INFO			✓	E1.20
SUPPORTED_PARAMETERS			✓	E1.20
PARAMETER_DESCRIPTION			✓	E1.20
SOFTWARE_VERSION_LABEL			✓	E1.20
DMX_START_ADDRESS		✓	✓	E1.20
DEVICE_LABEL		✓	✓	E1.20
MANUFACTURER_LABEL			✓	E1.20
DEVICE_MODEL_DESCRIPTION			✓	E1.20
IDENTIFY_DEVICE		✓	✓	E1.20
FACTORY_DEFAULTS		✓	✓	E1.20
DMX_PERSONALITY		✓	✓	E1.20
DMX_PERSONALITY_DESCRIPTION			✓	E1.20
DMX_FAIL_MODE		✓	✓	E1.37

Parameter ID	Discovery Command	SET Command	GET Command	ANSI/ PID
SERIAL_NUMBER[1]			✓	PID: 0xD400
IDENTIFY_MODE[1]		✓	✓	PID: 0xD402

1) Manufacturer depending RDM control commands (MSC - Manufacturer Specific Type)

Manufacturer depending RDM control commands:

SERIAL_NUMBER
PID: 0xD400

Outputs a text description (ASCII-Text) of the device serial number.

GET   Send: PDL=0
           Receive: PDL=21   (21 Byte ASCII-Text)

IDENTIFY_MODE
PID: 0xD402

Stellt den Mode ein der mit IDENTIFY_DEVICE ausgeführt wird.

GET   Send: PDL=0
           Receive: PDL=1   (1 Byte IDENTIFY_MODE_ID)

SET   Send: PDL=1   (1 Byte IDENTIFY_MODE_ID)
           Receive: PDL=0

IDENTIFY_MODE_ID	Funktion
0	FULL Identify All outputs switch ON / OFF simultaneously and the status LED flashes
1	LOUD Identify The outputs switch ON / OFF one after the other and the status LED flashes
2	QUIET Identify The outputs do not switch, only the status LED flashes

Factory Reset

Before running the Factory Reset, read all steps carefully.

To reset the **DMX-Universal-Demux** to delivery state, proceed as follows:

- Turn off device (disconnect power supply !)

- Set DIP switch 1 up to 10 to ON

- Turn on device (connect power supply)

- The LED lights up 20x during ca. 3 seconds

  ➔ While the LED lights up set DIP switch 10 to OFF

- Now, the Factory Reset is executed

  ➔ The LED lights up with error code 4

- Turn off device (disconnect power supply !)

- Now, the device can be used

If a Factory Reset is needed again, this procedure can be repeated at any time.

Dimensions
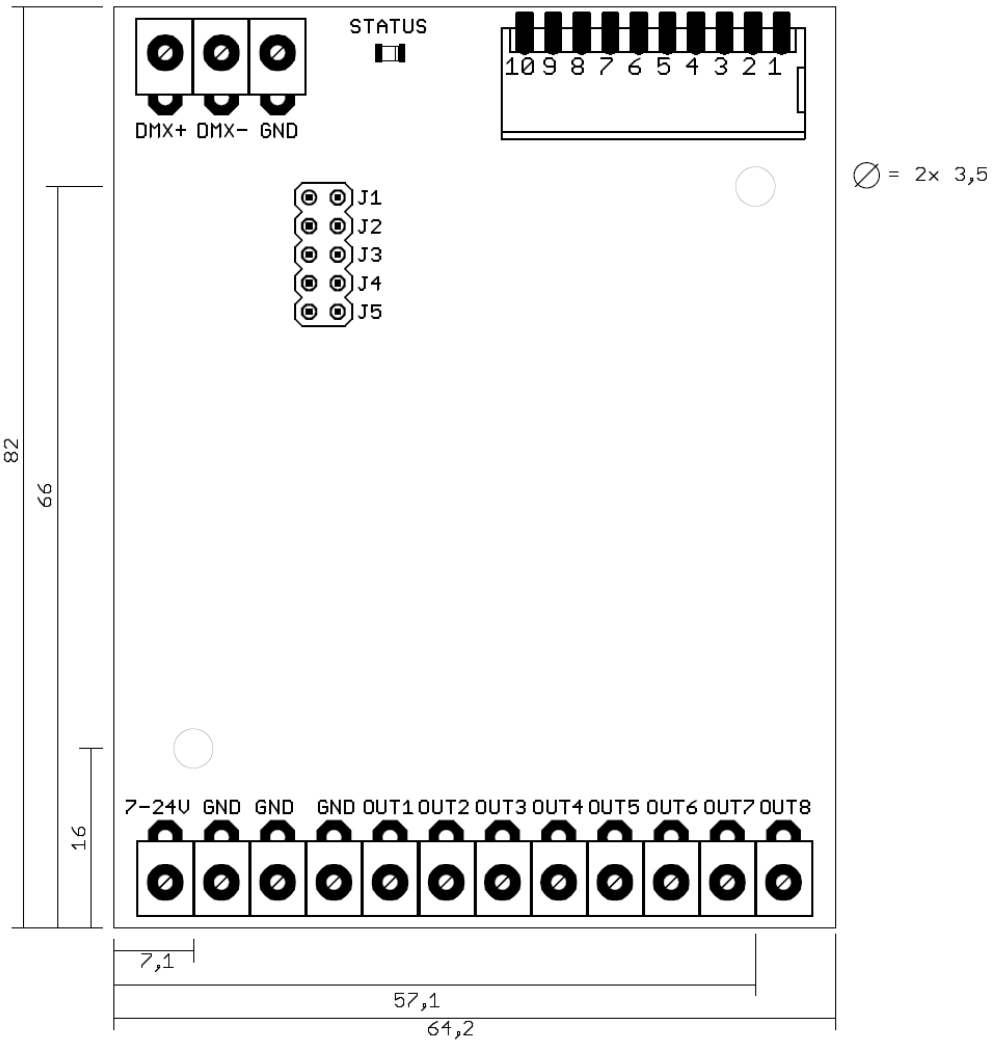
All details in mm

Equipment

Top-hat rail housing 700
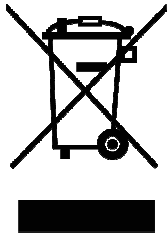
Power supply 12V

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.

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.

Warning

This device is no toy. Keep out of the reach of children. Parents are liable for consequential damages caused by nonobservance for their children.

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.

DMX4ALL

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