OPERATING MANUAL

DMX / PWM Decoder 3604PWM RDM Mk6

DMX RDM

RoHS
compliant

SOUNDLIGHT *The DMX Company* Bennigser Str. 1 D-30974 Wennigsen Tel. 05045-912 93-11

Thank you for choosing a SOUNDLIGHT device.

The SOUNDLIGHT DMX PWM Converter 3604PWM is an intelligent converter accepting drive signals according to USITT DMX-512/1990, DIN 56930-2, ANSI E1-11 DMX512A and ANSI E1-20 DMX RDM. The DMX signal is converterted to a PWM output signal to drive low voltage incandescent lamps, proportional valves or voltage driven LED arrays. 4 individual outputs are driven by 4 DMX addresses. The interface can be used with all standard light control systems. Its special advantages include:

- **universal protocol decoding**
  Recognizes all variants of the protocol as defined by USITT / ESTA / ANSI/DIN

- **future-proof**
  The unit is software controlled an can easily be adapted to any change in protocol definition.

- **high linearity**
  As the unit accepts and outputs data in digital format, excellent linearity chracteristics result.

- **simple supply**
  The power supply is 12...24V DC

- **signal loss**
  In the case of a loss of the drive signal the last setting will remain intact.

- **cost-effective**
  The SOUNDLIGHT 3604PWM-EP is a cost-effective solution for many purposes.

APPLICATIONS

The converter 3604PWM is intended for all control applications to drive voltage controlled loads, e.g. low voltage incandescent lamps, proportional valves or constant-voltage driven LEDs.
Each output can be loaded with 24V / 2 A / 50W@24VDC (maximum rated values).
The unit is well suited for all applications on stage, for TV background lighting, or for architectural lighting purposes. The dimming range is 0% to 100%.

The 3604PWM is best suited to drive OSRAM LINEARLIGHT FLEX LED tapes..

UNPACKING

Please unpack carefully and check that all items are intact. When leaving our factory, the card has been in good condition. In case of damage during transport please notify the carrier immediately.

When unpacking, you should identify these items:

* the interface card 3604PWM-EP
* the start address board 3000P
* this manual

The decoder 3604PWM comprises of these connectors:

CN3 POWER SUPPLY 12-24VDC

    orange   +12V DC...+24V DC
    blue   0 V DC (GND)

CN6   DMX Data Input XLR 5-pin

    1   GND, Screen
    2   DMX Drive Signal -
    3   DMX Drive Signal +
    4   to pin 4 DMX Output
    5   to pin 5 DMX Output
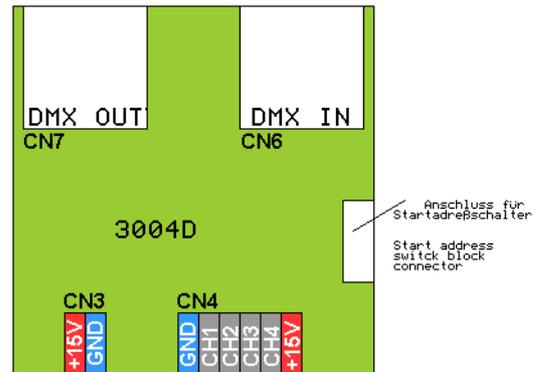
CN7   DMX Data Output XLR 5-pin

    1   GND, Screen
    2   DMX Drive Signal -
    3   DMX Drive Signal +
    4   from pin 4 DMX Input
    5   from pin 5 DMX Input

CN4   PWM OUTPUT

    1   GND, 0V
    2   OUTPUT 1: CATHODE, switches to GND
    3   OUTPUT 2
    4   OUTPUT 3
    5   OUTPUT 4
    6   + 12...24V DC, COMMON ANODE

Refer to the drawing for the location of the connectors. To open clamp, press lever. Insert wire, then release lever.

SIGNAL INDICATORS

Status signalling is with LED indicators:

green: DMX data reception OK
red: ERROR
            normally off
            blinks at transmission errors or at loss of signal

Red and green LEDs blink alternatively four times when programming data within the 3604PWM-EP (e.g. start address, HOLD mode or change of DMX personality). No action will be taken when start address setting is locked from RDM. See next chapter how to re-enable programming.

DMX START ADDRESS

100   10   1
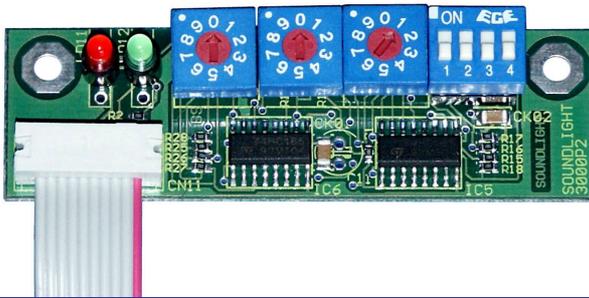
To program a DMX start address, simply set the desired start address. Wait some seconds until the unit recognizes and programs the address setting. The programming cycle will be indicated by the the red and green LED flashing alternatively four times.

IMPORTANT NOTE:
When programming a DMX start adress, changing the DMX personality, the HOLD mode or other properties via RDM access, the external address switches are disabled. To re-enable the DMX start address switches, temporarily set any adress from 900 ... 999 (simply set the "hundreds" selector to "9"). This will re-enable the address switches and override RDM settings.

DIP-SWITCHES

The DMX personality (mode of operation) and the output behaviour is set using the four DIP-switches of the start address board 3000P (or functions F1...F4 using the start address board 3003P):

DIP-Switch 1   **DMX HOLD**
OFF=   see DIP switch 2
ON =   DMX HOLD at data loss

DIP-Switch 2   **OUTPUT LEVEL AT NON-HOLD**
OFF=   all outputs set to OFF at data loss
ON =   all outputs set to ON at data loss

DIP-Switch 3   **Smooth: default: off = normal**
The smooting function can be activated to achieve a smoother output.

DIP-Switch 4   **Master: default: off = no**
Use DIP switch 4 to activate a common master channel (DMX channel 5).

LED CONNECTION

the 3604PWM-EP can drive _voltage controlled_ LEDs directly. Voltage controlled LEDs can be identifies as LEDS, which can be driven from a voltage source, e.g. 12V DC, 24V DC). Examples for such LEDS are TRIDONIC LED-Strips, OSRAM LIENARLIGHT and LINEARLIGHT FLEX. LEDs requiring a _current control_ (LUXEON, OSRAM DRAGON etc.) must be fitted with an additional external current limiting device (see examples below).

Common connection of LEDs (ANODE) is the _positive terminal_ (orange) of the output connector. When powering from the LED side, extra power supply of the 3604PWM-EP is not required. Alternatively, the 3604PWM-EP could be powered and LED power derived from the decoder. Then, of course, the total supply current must be provided from the decoder supply. (orange [+] and blue [-] terminals are internally connected in parallel).

To drive _current controlled_ LEDs (e.g. LUXEON LumiLeds, OSRAM Dragon, TRIDONIC powerLED EOS) use a separate current limiter with the 3604PWM-EP.

fuse 2A fast blow
Sicherung 2A flink

0V

+8V...+24V (max)

3004PWM

LED-Array Common Anode
e.g. OSRAM LINEARLIGHT RGB FLEX
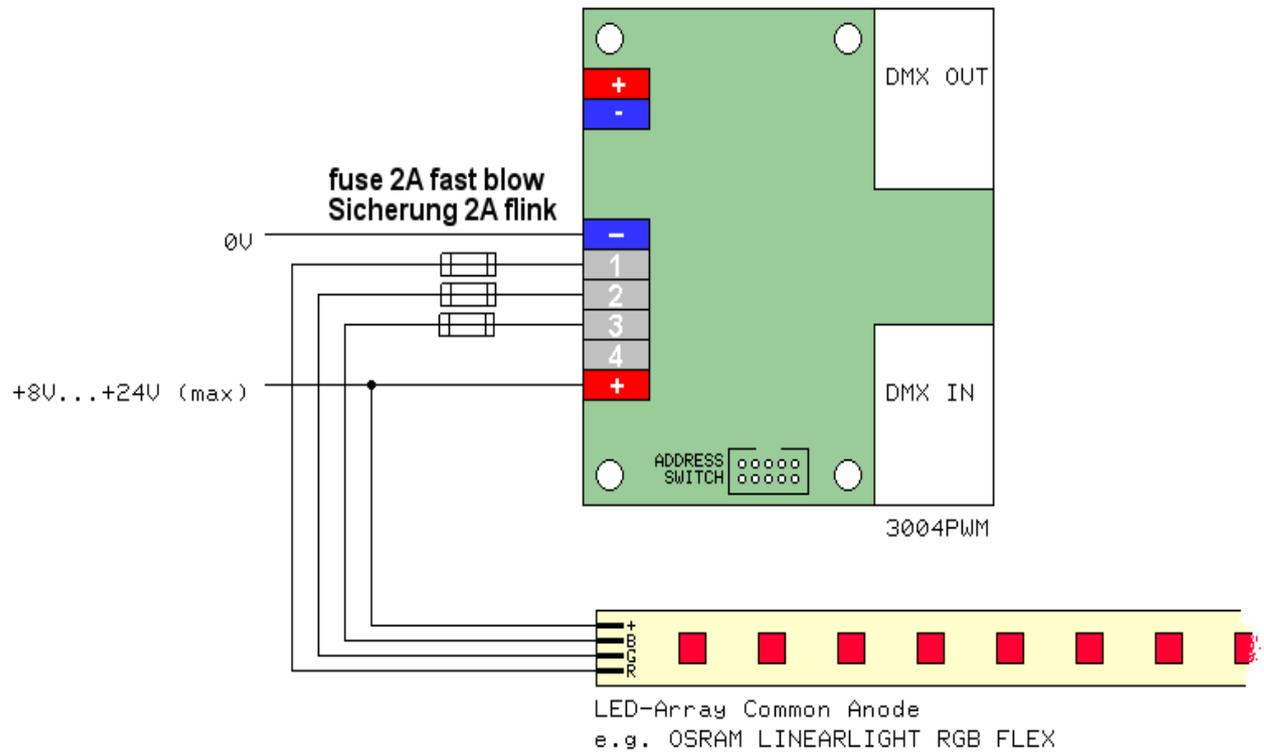
Driving voltage controlled LEDs using LED supply. Outputs must be fused externally 2A fast blow.

+8V...+24V (max)
0V

fuse 2A fast blow
Sicherung 2A flink

3004PWM

LED-Array Common Anode
e.g. OSRAM LINEARLIGHT RGB FLEX
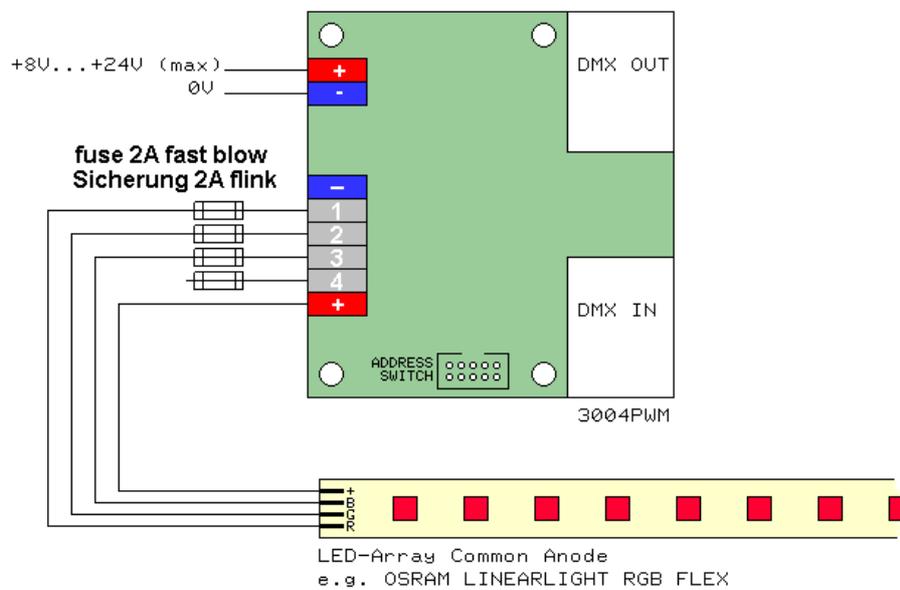
Driving voltage controlled LEDs, alternative supply method.

Configuration

We have implemented several options to customize the 3604PWM-EP behaviour. Thus, it can easily be configured to meet individual needs.

IMPORTANT! These settings affect the basic behaviour of the decoder. **Do not change any parameters unless you exactly know what you do.** Standard settings are marked **" <—default"**

General procedure:

Set the required start address and *then* power on the device. When successful, the LEDs blink alternatively 10 times. Revert to the standard start address then.

Setting of PWM Frequency:

881	=	15,6883 kHz	
882	=	1,9610 kHz	
883	=	245,1 Hz	*<—default*
884	=	61,3 Hz	

Setting of channel patching

OUTPUT 1

811	=	Output 1 to DMX channel 1	*<—default*
812	=	Output 1 to DMX channel 2	
813	=	Output 1 to DMX channel 3	
814	=	Output 1 to DMX channel 4	

OUTPUT 2

821	=	Output 2 to DMX channel 1	
822	=	Output 2 to DMX channel 2	*<—default*
823	=	Output 2 to DMX channel 3	
824	=	Output 2 to DMX channel 4	

OUTPUT 3

831	=	Output 3 to DMX channel 1	
832	=	Output 3 to DMX channel 2	
833	=	Output 3 to DMX channel 3	*<—default*
834	=	Output 3 to DMX channel 4	

OUTPUT 4

841	=	Output 4 to DMX channel 1	
842	=	Output 4 to DMX channel 2	
843	=	Output 4 to DMX channel 3	
844	=	Output 4 to DMX channel 4	*<—default*

MASTER

851	=	Master to DMX channel 1	
852	=	Master to DMX channel 2	
853	=	Master to DMX channel 3	
854	=	Master to DMX channel 4	
855	=	Master to DMX channel 5	*<—default*

Output Master (Limiting)

890	=	DMX Ch 5 is Master (Master Multiply),	*<—default*
		that is, all iputs are linearly scaled with the master (multiply)	
891	=	DMX Ch 5 is Mastel (Master-Limiting),	
		that is, all inputs are limited to the maximum value of the master	

Reset to factory defaults :

880	=	Reset to factory defaults

Test programs

Test programs can be invoked by these addresses:
- 800 = all outputs OFF
- 801 = Output 1 ON
- 802 = Output 2 ON
- 803 = Output 3 ON
- 804 = Output 4 ON
- 808 = Fade-run 1-2-3 fast
- 809 = Fade-run 1-2-3 slow

DMX RDM

The decoder accepts DMX RDM (see ANSI E1-20:2006 V1.0). Using RDM, you may change the DMX start address, the DMX personality and some parameters.

Personality 1:   4-channel mode
Personality 2:   5-channel mode (4 outputs plus master)
Personality 3:   4-channel mode w/ smoothing function
Personality 4:   5-channel mode w/ smoothing function (4 outputs plus master)

Start adress setting using DMX RDM::
Please note that the start address switches get locked as soon as settings have been changed using DMX RDM. This prevents the decoder from reading start address switch data again.
To unlock the switches, set the hundreds position to "9" temporarily. This will unlock the switches.

Additional RDM function allow to:
- read the DMX slot labels
- read and modify the device label
- identify the decoder
- read device hours and device initalizations
- read, activate or deactivate the DMX HOLD mode
- monitor DC supply voltage
  (automatic status messages are generated when leaving the allowed range)

TECHNICAL DATA

Dimensions: 70 mm x 70 mm
Power supply: 12VDC (min.) to 24VDC (max.)
DMX IN: XLR 5-pin male, 1 Unit Load
DMX OUT: XLR 5-pin female, fed-thru
DMX data slots: 4 (5 w/ master enabled)
PWM Out: 12-24V pulsed signal 0%-100% (level dependent on power
                       supply voltage)
PWM resolution: 8 Bit
PWM characteristic: linear
max. output current: 2 A per output (ext. fuses 2A fast blow required for output protection)
Output frequency: 245 Hz
Order code.:   3604PWM-EP

DISTURBANCES

If a trouble-free operation cannot be guaranteed, disconnect the decoder interface and secure it against unwanted operation. This is especially necessary, when
- the unit has visible damages;
- the unit does not operate;
- internal parts are loose;
- connection cables show visible damages.

CE MARKING

The unit has been tested in our lab and has been marked to comply with CE requirements. To ensure compliance, use grounded power leads only and make sure that properly shielded data lines (CAT5, DMX data cable or Digital Audio cable to AES/EBU specifications) are used. Any modifications not approved by the manufacturer may void CE compliance.

LIMITED WARRANTY

This instrument ist warranted against defects in metarials and workmanship for a period of 12 month, beginning with the date of purchase. The warranty is limited to repair or exchange of the hardware product; no further liability is assumed. SOUNDLIGHT is not responsible for damages or for loss of data, sales or profit which arise from usage or breakdown of the hardware product. In germany, SOUNDLIGHT will repair or replace established defects in hardware, provided that the defective part is sent in, freight paid, through the responsible dealer along with warranty card and/or sales receipt prior to expiration of warranty.
Warranty is void:
- when modifying or trying to repair the unit without authorisation;
- modification of the circuitry;
- damages by interference of other persons;
- operation which is not in arccordance with the manual;
- connection to wrong voltage or current;
- misuse.

SERVICE

There are no parts within the DMX decoder 3604PWM-EP which require the user's attention. Should your unit require servicing, please send it to the factory, freight paid.

END OF LIFETIME

When the useful lifetime of this product has been reched, it must be disposed of properly. Electronic devices must not be placed in domestic waste. Consult your local authorities to find the nearest collection point of used electric and electronic devices. SOUNDLIGHT is a WEEE registered company (Reg No. DE58883929).