

## OPERATING MANUAL

### DMX / PWM Decoder 3614PWM-H5 Mk1 RDM



(C) SOUNDLIGHT 1996-2018 \* ALL RIGHTS RESERVED \* NO PART OF THIS MANUAL MAY BE REPRODUCED, DUPLICATED OR USED COMMERCIALY WITHOUT THE PRIOR WRITTEN CONSENT OF THE OWNER \* ALL STATEMENTS WITHIN THIS MANUAL HAVE BEEN CHECKED CAREFULLY AND ARE BELIEVED TO BE ACCURATE, HOWEVER SOUNDLIGHT DOES NOT ASSUME ANY RESPONSIBILITY FOR ERRORS OR OMISSIONS \* WE RESERVE THE RIGHT TO CHANGE OR MODIFY HARDWARE, FIRMWARE OR DEVICE PROPERTIES DUE TO TECHNICAL PROGRESS \* THE USER HAS TO CHECK THE SUITABILITY OF THE EQUIPMENT FOR THE INTENDED USE. SOUNDLIGHT EXPRESSLY EXCLUDES ANY RESPONSIBILITY FOR DAMAGES - DIRECT OR INDIRECT - WHICH MAY OCCUR DUE TO MISUSE, UNPROPER INSTALLATION, WRONG OPERATING CONDITIONS AND NON-COMPLIANCE TO THE INSTRUMENT'S INSTRUCTIONS, AS WELL AS IGNORANCE OF EXISTING SAFETY REGULATIONS.



## Thank you for choosing a SOUNDLIGHT device.

The SOUNDLIGHT DMX PWM Converter 3614PWM-H5 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 converted to a PWM output signal to drive low voltage incandescent lamps, proportional valves or voltage driven LED arrays. 3 individual outputs are driven by 3 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 and can easily be adapted to any change in protocol.
- **high linearity**  
As the unit accepts and outputs data in digital format, excellent linearity characteristics result.
- **simple supply**  
The power supply is **5.0V DC**
- **signal loss**  
In the case of a loss of the drive signal the last setting will remain intact.
- **cost-effective**  
The SOUNDLIGHT 3614PWM-H5 is a cost-effective solution for many purposes.

## APPLICATIONS

The converter 3614PWM-H5 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 5V / 8 A / 40W@5VDC (absolute 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 3614PWM-H5 is best suited to drive LED FLEX LED tapes.

## Nomenclature

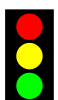
These symbols are used within this manual:



DANGER ! May cause harm to user and/or equipment



INFO: How to setup your device



INFO: Status information

# UNPACKING

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

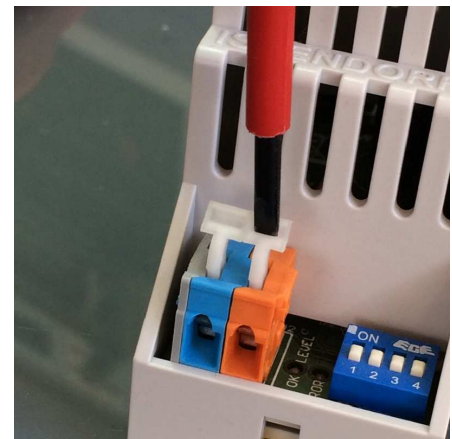
When unpacking, you should identify these items:

- \* the interface 3614PWM-H5
- \* this manual

*Please note that a start address programming adaptor (3000P) is NOT included with DIN rail mount devices. All settings can be performed using DMX RDM. Alternatively, a programming adaptor, which can be used to set DMX start address, DMX personality and DMX HOLD mode, **must be ordered separately**. If you already have it, there is no need to buy again: the start address board can be used for all our DMX interfaces, pcb and DIN rail mount alike.*

## Connectors

The decoder 3614PWM-H5 consists of 6 terminal blocks. Terminals are based on screwless WAGO cage clamp technology, which prevents loose connections and guarantees safe electrical contact at all times. Use a standard **flat blade** screw driver and press the lever to open the terminal, insert wire and release. Do **not** use a philipps or pozidrive screwdriver to prevent damage ! Though both, solid and stranded wires may be used we recommend to use stranded wires in combination with isolated ferrules whenever possible.



Please refer to the connector location outlined below.

## CONNECTORS

The decoder 3614PWM-H5 comprises of these connectors:

### CN1 POWER SUPPLY 5VDC

red	+5V DC +/- 5% (min. 4,75V, max. 5,25V)
blue	0V DC (GND)

### CN2 PWM OUTPUT

1	blue	Common GND
2	black	CH 1: Drive Output
3	blue	Common GND
4	black	CH 2: Drive Output

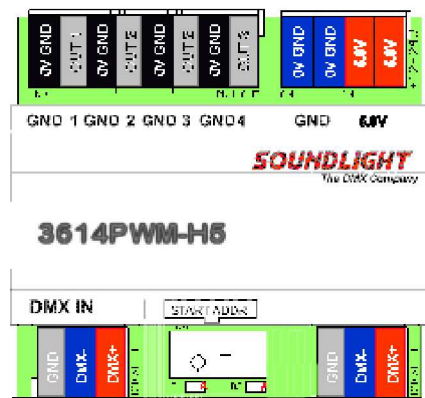
- 5 blue Common GND
- 6 black CH 3: Drive Output
- 7 blue Common GND
- 8 black CH 4: Drive Output

**CN3 DMX Data Input**

- 1 grey GND, Screen
- 2 blue DMX Drive Signal -
- 3 orange DMX Drive Signal +

**CN4 DMX Data Output**

- 1 grey GND, Screen
- 2 blue DMX Drive Signal -
- 3 orange DMX Drive Signal +



**IMPORTANT NOTICE:** Outputs are not short circuit protected and must be fused externally with appropriate fuse 8A fast blow.

## SIGNAL INDICATORS

Status signalling is with LED indicators:



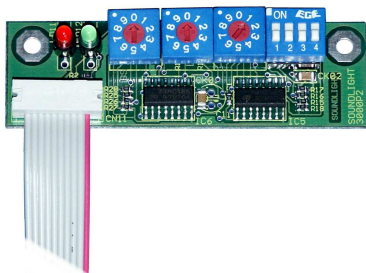
**green:** **DMX**  
Steady: Data reception OK  
Blinking: Start address error

**red:** **ERROR**  
normally off  
blinks at transmission errors or at loss of signal

**yellow/blue:** **RDM**  
lights when RDM programming active. Address switches are locked when RDM programming is active. See chapter "RDM" for more info.

Red and green LEDs blink alternatively four times when programming data within the 3614PWM-H5 (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



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.



The decoder can be operated with or without start address board connected. Please note that switches become *disengaged* and the respective settings are overridden when programming is done via RDM. To re-engage the switches, set the hundreds position to „9“ temporarily and wait for a programming cycle to complete. A programming cycle is indicated by the red and the green LED blinking four times alternatively.



## 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):

<b>DIP SWITCH 1,2</b>	<b>DMX HOLD MODUS</b>	<b>S1</b>	<b>S2</b>
	Mode 0: no HOLD, all outputs OFF	OFF	OFF
	Mode 1: no HOLD, all outputs ON	OFF	ON
	Mode 2: DMX HOLD ("last look")	ON	OFF

**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 3,4**      **DMX PERSONALITY**

Personality 1: S3=OFF	S4=OFF	4-CH mode quasi-logarithmic
Personality 2: S3=OFF	S4=ON	4-CH mode + Master (CH 4)
Personality 3: S3=ON	S4=OFF	4-CH mode linear
Personality 4: S3=ON	S4=ON	1-CH mode (outputs 1-4)

The DMX Personality can be set using DMX RDM.

## DRIVE CHARACTERISTIC

The output drive characteristic follows a quasi logarithmic law adapted to the human's eye sensitivity. The output characteristic can be changed to linear to match other commercially available products.

## CONNECTING LEDs

You may connect *voltage controlled* LEDs directly. Voltage controlled LEDs are LED assemblies, which may be connected to a specified voltage (5V DC) directly and incorporate measures to limit the operating current (e.g. LED-Strips etc.). LEDs requiring a *current control* (e.g. LUXEON light sources, OSRAM Golden Dragon etc.) must be fitted with additional current limiting circuitry and are NOT suited for direct connection to the 3614PWM-H5 decoder.

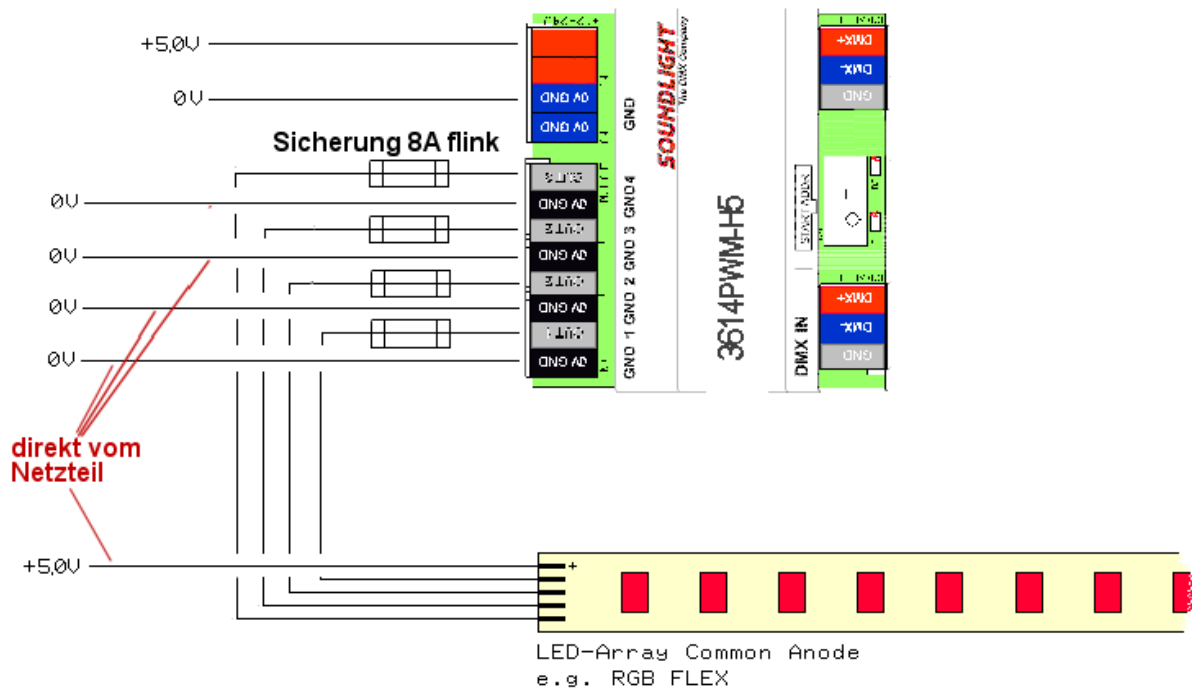
Common LED terminal is the **positive pin** of the supply voltage ("Common Anode"). As high currents are present, carefully check the wiring instructions and use sufficient wire gauges. Outputs are **not short circuit protected** and must be fused externally.

## WIRING INSTRUCTIONS

Please note:

At full load, the total operating current is in excess of the rating of a single output cage clamp connector. Thus multiple GND clamps are provided to distribute the load to multiple connectors.

- Only use a power supply with regulated DC output and appropriate current limiting.
- All GND terminals (power supply and LED drive outputs) are interconnected. Use **one separate GND wire per output** and per power supply.
- Feed the LED arrays **directly from the PSU** (+5V DC)
- The electronics can be fed separately (+5VDC) to allow operation even when the LED PSU has been shut down.
- Insert **external fuses 8A fast blow** to prevent short circuit conditions.



Reference wiring scheme shown. The 3614 has four outputs; make sure that all GND terminals are wired to distribute current load. Use short wires of ample diameters to minimize voltage losses.

# TECHNICAL DATA

Dimensions:	86mm (W) x 93mm (D) x 66mm (H), width 5TE (units)
Power supply:	5.0V DC +/- 5%
DMX IN:	1 Unit Load
DMX OUT:	fed-thru
DMX data slots:	3(4)
PWM Out:	5V pulse signal 0%-100%
PWM resolution:	12Bit
PWM characteristic:	quasi-logarithmic / linear
Max. output current:	8 A per output ( <b>must be externally fused: 8A fast blow</b> )
Output frequency:	approx. 490 Hz
Protection:	IP20 - for dry rooms only
Operating temperature:	0-50 C
Order code:	3614PWM-H5

## DMX RDM

The 3614PWM-H5 is compatible with ANSI E1-20 DMX RDM Version 1.0. Please note some special properties of devices complying with DMX RDM:

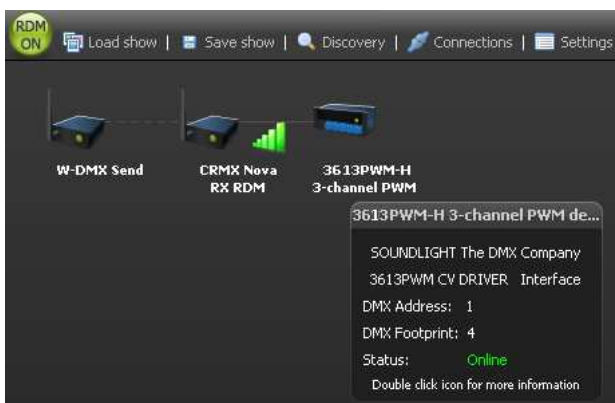
- DMX HOLD properties are not supported by RDM standard ANSI E1-20. A factory specific command (DMX HOLD) has been added to compensate these restraints. Use parameters 0...2 to set the desired HOLD mode:

- 0: no HOLD, all outputs OFF upon loss of signal
- 1: no HOLD, all Outputs ON upon loss of signal
- 2: DMX HOLD (last look remains active)

- Setting the DMX personality reflects setting of DIP switches 3 and 4 (and vice versa).

### Start address 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 initializations
- read, activate or deactivate the DMX HOLD mode
- monitor DC supply voltage

Recognizing the 3614PWM-H5 using Wireless DMX RDM (Screenshot: CRMX Nova Software)

For more information or an in-depth command list, see the RDM manual available from our website at [www.rdm.soundlight.de](http://www.rdm.soundlight.de) or product website at [www.soundlight.de/produkte/3614PWM-H5](http://www.soundlight.de/produkte/3614PWM-H5) .

# 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.

# FCC STATEMENT

This product has been tested and complies with the specifications for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment or devices
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

FCC Caution: Any change or modification to the product not expressly approved by SLH could void the user's authority to operate the device.

# LIMITED WARRANTY

This instrument is warranted against defects in materials and workmanship for a period of 24 months, 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 accordance with the manual;
- connection to wrong voltage or current;
- misuse.

## SERVICE

There are no parts within the DMX decoder 3614PWM-H5 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 reached, 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).

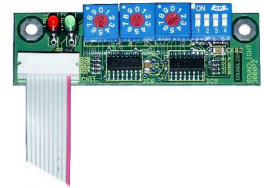
## ACCESSORIES

To set the DMX start address and change the operating parameters, a DMX RDM controller or a start address board is needed. These boards are optionally available:

### DMX START ADDRESS BOARD 3000P

[www.soundlight.de/produkte/3000p](http://www.soundlight.de/produkte/3000p)

Three address BCD switches and a DIP switch to set operating parameters. This is the standard board, which is compatible with all our decoders (both PCB and DIN rail mount)



### DMX START ADDRESS BOARD 3006P

[www.soundlight.de/produkte/3006p](http://www.soundlight.de/produkte/3006p)

Start address board with LCD display and rotary encoder to set the DMX start address. Address is retained in nonvolatile onboard memory.



### DMX RDM CONTROLLER GET/SET USBRDM-TRI

[www.soundlight.de/produkte/usbrdm-tri](http://www.soundlight.de/produkte/usbrdm-tri)

Intelligent controller software for use on Windows machines. Complete with USB connected interface connecting to DMX responders or introduce RDM control when working with other DMX control gear.



Start address boards are not contained with DIN rail mount decoders and must always be ordered separately!

## More RDM Info

For more information on DMX RDM pls check the web pages of the DMX RDM protocol group ([www.rdmprotocol.org](http://www.rdmprotocol.org)), or visit: [www.rdm.soundlight.de](http://www.rdm.soundlight.de)