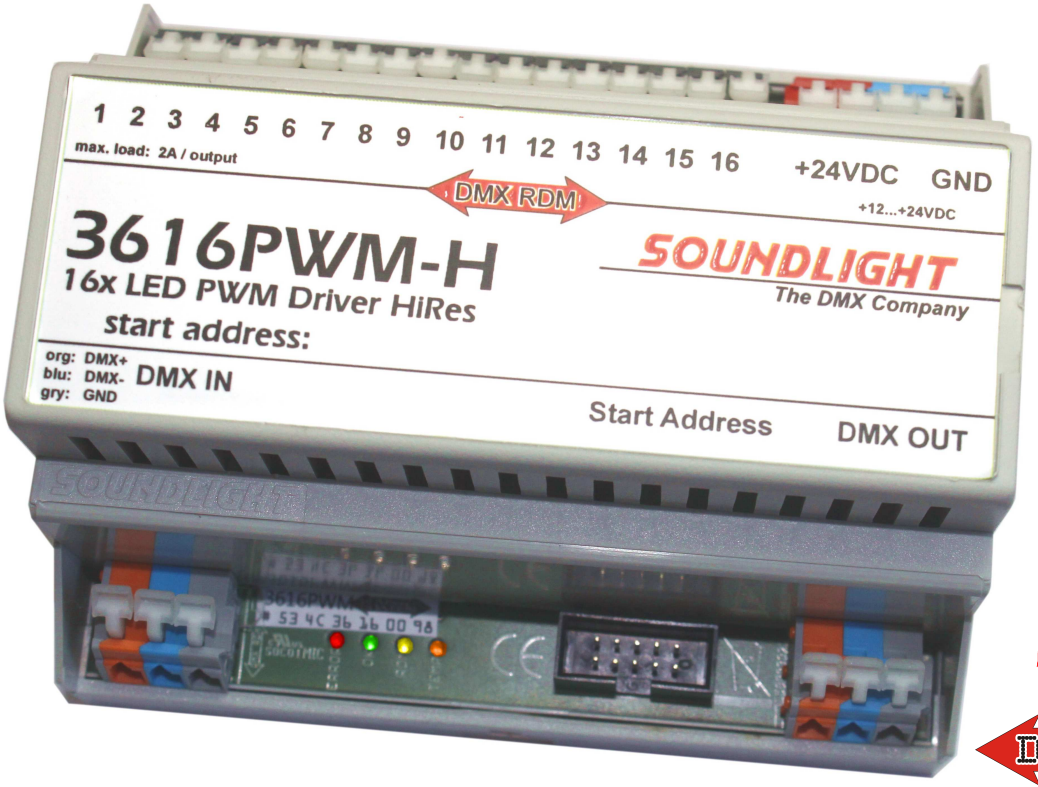
SOUNDLIGHT
The DMX Company

last updated: 17-10-24

OPERATING MANUAL

DMX / PWM Decoder 3616PWM-H Mk1.4 RDM



RoHS compliant

DMX RDM

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

Thank you for choosing a SOUNDLIGHT product.

The SOUNDLIGHT DMX PWM Converter 3616PWM-H 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, or voltage driven (CV) LED arrays. 16 individual outputs are driven by up to 16 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.

- **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 (output voltage matches power supply voltage)

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

- **cost-effective**
  The SOUNDLIGHT 3616PWM-H is a cost-effective solution for many purposes.

APPLICATIONS

The converter 3616PWM-H is intended for all control applications to drive voltage controlled loads, e.g. low voltage incandescent lamps, or constant-voltage driven LEDs. Each output can be loaded with 24V / 2 A / 50W@24VDC (absolute maximum rated values). The combined load of all outputs must not exceed 16A.
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%.

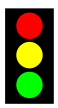
The 3616PWM-H is best suited to drive OSRAM LINEARLIGHT FLEX LED tapes.

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 3616PWM-H
* 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.*

CAGE CLAMPS

The decoder 3616PWM-H 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. **IMPORTANT:** 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 3616PWM-H comprises of these connectors:
(All terminal numbers: front view, left to right)

CN1 POWER SUPPLY 24VDC

1	blue	0V DC (GND)
2	blue	0V DC (GND)
3	red	+24V DC
4	red	+24V DC

CN2 PWM OUTPUT

1	grey	CH 1: Drive Output -

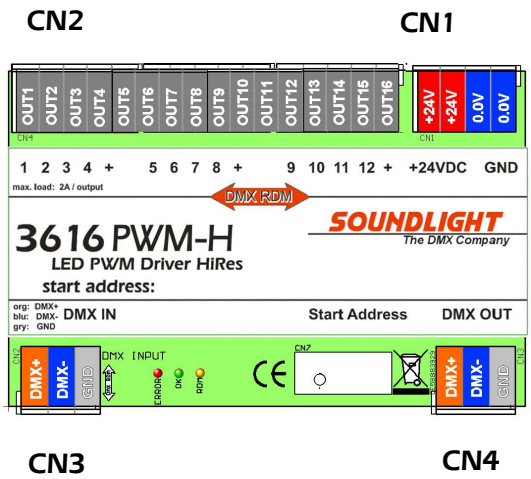
2	grey	CH 2: Drive Output -
3	grey	CH 3: Drive Output -
....		
16	grey	CH 16: Drive Output -

CN3 **DMX Data Input**

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

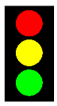
CN4 **DMX Data Output**

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



IMPORTANT NOTICE: **Outputs are short circuit protected using internal self-resetting thermal fuses. Thermal fuses act slowly and allow high inrush currents.**

SIGNAL INDICATORS



Status signalling is with LED indicators:

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

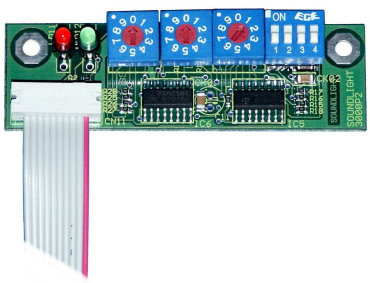
red: **ERROR**
normally off
blinks at transmission errors or at loss of signal

yellow: **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 3616PWM-H (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

S3 S2 S1



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 status LEDs flashing alternatively four times.

The decoder can be operated with or without start address board connected. Please note that mechanical switches become ***disengaged*** and the respective settings are overridden when programming is done via DMX 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):

DIP SWITCH 1,2	**DMX HOLD MODUS**	**S1**	**S2**
	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	16-CH mode (smooth)
Personality 2:	S3=OFF	S4=ON	4-CH mode (smooth)
Personality 3:	S3=ON	S4=OFF	16-CH mode (fast)
Personality 4:	S3=ON	S4=ON	4-CH mode (fast)

The DMX Personality can also be set using DMX RDM.

DRIVE CHARACTERISTIC

The output drive characteristic follows a quasi-logarithmic law adapted to the human's eye sensitivity.

CONNECTING LEDs

You may connect *voltage controlled* LEDs directly.

Voltage controlled LEDs are LED assemblies, which may be connected to a specified voltage (24V DC) directly and incorporate measures to limit the operating current (e.g. TRIDONIC LED-Strips, OSRAM LINEARLIGHT FLEX). Such LEDs are commonly referred to as „CV“.

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 3616PWM-H 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 sufficiant wire gauges. Outputs are ***not short circuit protected*** and must be fused externally.

WIRING INSTRUCTIONS

Please note:

At full load, the total operating current can reach the rating of a single output cage clamp connector. Thus **multiple GND clamps** are provided to **distribute the load** to multiple wires.

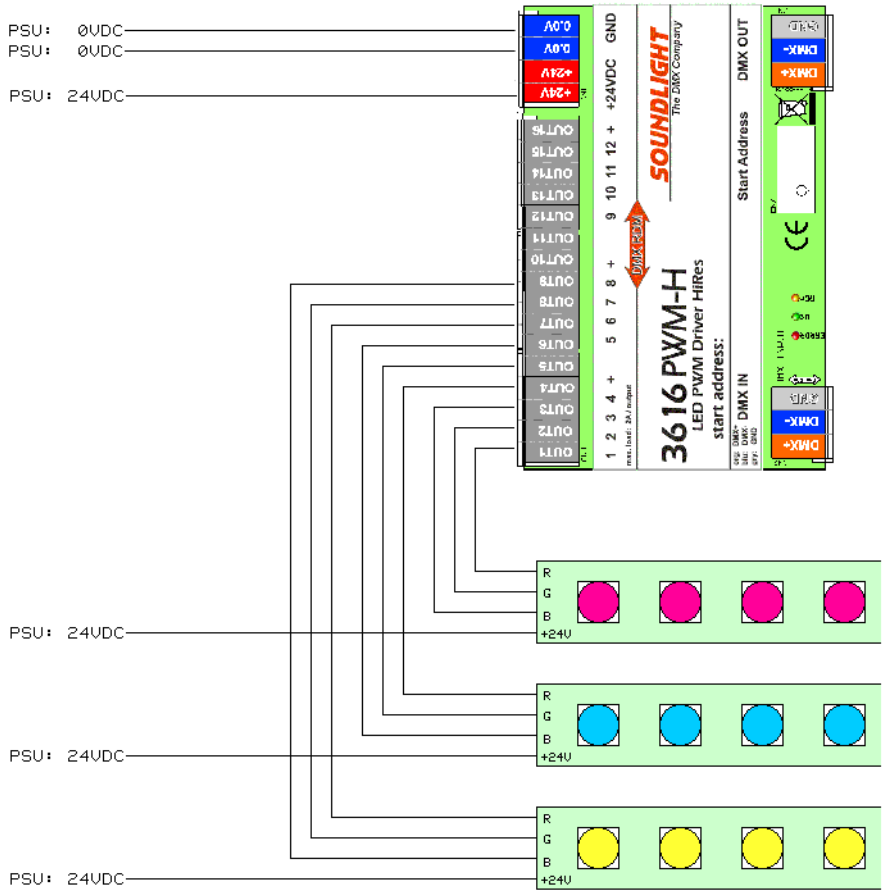
- Only use a power supply with regulated DC output and appropriate current limiting.

- Feed the LED arrays
directly from the PSU (+24V DC)

- All GND terminals are interconnected.
Use **one separate GND wire per connector**.

- The electronics can be fed separately (+12...+24VDC) to allow operation even when the LED PSU has been shut down.

- If needed, insert **external fuses 2A fast blow** to prevent short circuit conditions.



Typical wiring of 3616PWM-H when used with multiple RGB strips.
Up to 5 common anode RGB strips or 4 RGBW strips can be connected.

TECHNICAL DATA

Dimensions:	114mm (W) x 93mm (D) x 66mm (H), width 6.5TE (units)
Power supply:	12 or 24V DC
DMX IN:	1 Unit Load
DMX OUT:	fed-thru
DMX data slots:	16(4)
PWM Out:	12/24V pulse signal 0%-100%
PWM resolution:	12Bit
PWM characteristic	quasi-logarithmic
Output Current:	1A per output
Absolute max. output current:	2A per output *(internally limited: 2.5A thermal fuse slow blow)*
Absolute max. output current:	16A (all outputs)
Output frequency:	520 Hz
Protection:	IP20 - for dry rooms only
Operating temperature:	0-50 C
Order code:	3616PWM-H

DMX RDM

The 3616PWM-H 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 adress setting using DMX RDM::

Please note that the 3000P 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

Recognizing the 3616PWM-H 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 or refer to the product website at: www.soundlight.de/produkte/3616pwm-h .

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

CE

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 ist warranted against defects in metarials and workmanship for a period of 24 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 3616PWM-H which require the user's attention. Should your unit require servicing, please send it to the factory, freight paid.

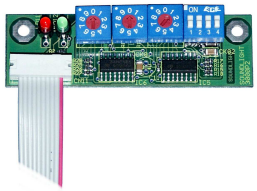
END OF LIFETIME

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



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

DMX START ADDRESS BOARD 3006P
www.soundlight.de/produkte/3006p

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

DMX RDM CONTROLLER GET/SET USBRDM-TRI
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!