

OPERATING MANUAL

DMX / DSI / DALI / PWM Dekoder 3804B-H Mk1



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Thank you for choosing a SOUNDLIGHT device.

The SOUNDLIGHT DMX DSI/DALI Converter 3804B-H is an intelligent DMX converter decoding digital data complying with standard USITT DMX512 and DIN 56930-2 to DSI serial output to drive digital SOUNDLIGHT LUXMATE PCA ballasts for fluorescent tubes. The 3804B-H replaces the industry standard 3004B-H: same possibilities, more features, DMX RDM compatible. 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 definition.
- **high linearity**
As the unit accepts and outputs data in digital format, excellent linearity characteristics result.
- **simple supply**
The power supply is achieved by its own PSU, power supply is 230V AC (115V AC on request)
- **signal loss**
In the case of a loss of the drive signal the last setting will remain intact.
- **cost-effective**
The SOUNDLIGHT 3804B-H is a cost-effective solution for many purposes.

APPLICATIONS

The converter 3804B-H is designed to drive fluorescent light tubes with variable intensity. Up to eight electronic DSI or DALI compatible ballasts (8 separate circuits) may be connected per output. The unit is well suited for all applications on stage, for TV background lighting, or for architectural lighting purposes. The dimming range is 100% to 1%*, and OFF at DMX input zero.

**typical values, depending on characteristics of ballasts used.*

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 3804B-H
- * this manual

The optional programming adaptor 3000P or 3003P (not included with DIN rail devices) must be ordered separately.

CONNECTORS

The decoder 3804B-H comprises of these connectors::

CN9 POWER SUPPLY 230V AC 50 Hz

- 1 black: L 230V AC
- 2 blue: N 0V AC

CN6 DMX Data Input

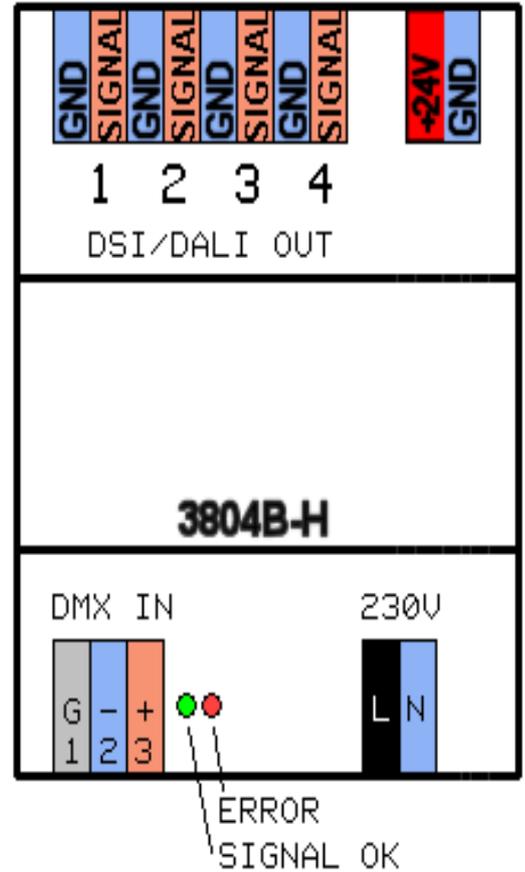
- 1 (grey) GND, Screen
- 2 (blue) DMX Drive Signal -
- 3 (orange) DMX Drive Signal +

CN1-4 Drive Output to electronic ballasts

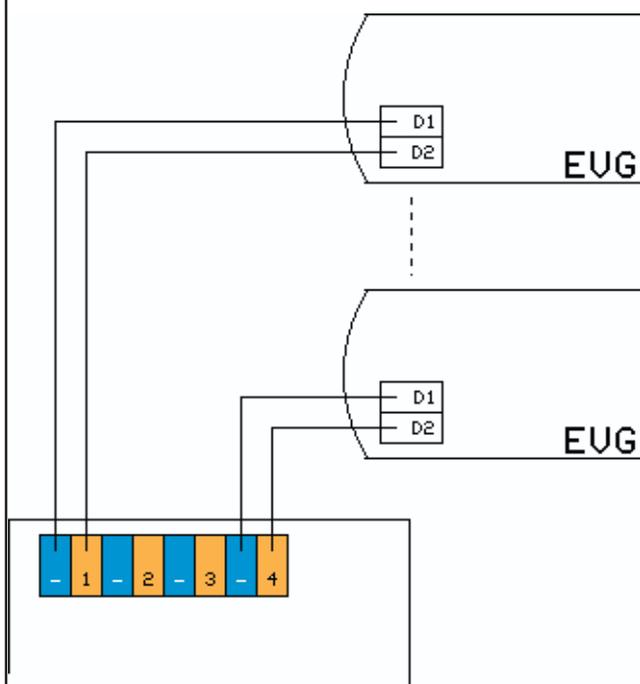
- 1 CH 1: Drive Signal GND
- 2 CH 1: Drive Signal OUT
- 3 CH 2: Drive Signal GND
- 4 CH 2: Drive Signal OUT
- 5 CH 3: Drive Signal GND
- 6 CH 3: Drive Signal OUT
- 7 CH 4: Drive Signal GND
- 8 CH 4: Drive Signal OUT

CN5 alternative DC power supply 24VDC

- 1(orange) +24V DC
- 2(blue) GND



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



You may connect DSI (Digital Serial Interface) compatible or DALI (Digital Addressable Lighting Interface) compatible electronic ballasts (EVG) to the 3804B-H. Optimum performance will be obtained when using DSI compatible ballasts. The interface has to be programmed for DSI or DALI mode, see below. You are not allowed to mix DSI and DALI devices on one decoder.

Ballasts must be connected to the output terminals of the 3804B-H. Multiple ballasts may be connected in parallel if required - see technical data.

Digital SOUNDLIGHT PCA electronic ballasts are insensitive to polarization. If using other ballasts, please check before wiring. The signal output of the 3804B-H is positive (+).

When using DALI ballasts, please note that the 3804B-H will deliver DALI power. NEVER connect a DALI power supply to the 3804B-H output terminals.

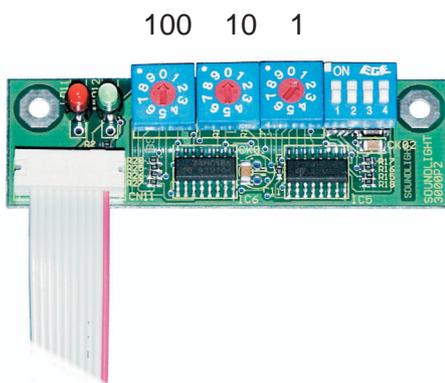
SIGNAL INDICATORS

Status signalling is with LED indicators:

green: DMX data reception OK

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

DMX Start Address



It is a commonly used scheme for building automation devices to avoid configuration switches. All settings are stored permanently in non-volatile memory. When installing the decoder for the first time, the output protocol and the DMX start address (number of the first DMX data slot, value 001 ... 509) must be programmed.

A start address switch board 3000P or 3003P is required to set start address and mode of operation. With DMX RDM, no start address board is required. Start address settings and DMX personality selection can be performed via DMX RDM.

Programming adaptor

To program a DMX start address, Set the desired start address, then connect the address board. Then power up the decoder.

Valid address settings are from 001 to 509. 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.

If the decoder is already fully wired you may test the system for proper operation right now. If everything works to your satisfaction, power down the system and remove the address board.

DSI / DALI

DSI/ DALI, DIP-Switches

The output protocol 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 **OUTPUT MODE**
OFF= output DSI or DALI (see DIP switch 4)
ON = output PWM

DIP-Switch 4 **OUTPUT PROTOCOL**
with output mode DSI/DALI
OFF= output protocol DSI
ON = output protocol DALI

with output mode PWM
OFF= output frequency 245 Hz
ON = output frequency 860 Hz

DMX HOLD mode and output behaviour at signal loss cannot be programmed via DMX RDM standard 1.0 (commands have not yet been defined by the standards committee and are not present in ANSI E1-20 V1.0 protocol specification). Set these properties *before* using DMX RDM.

DMX RDM

The 3804B-H complies with DMX RDM standards 1.0 and is identified as protocol converter. You may set four DMX personalities:

- 1: DMX to DSI converter
- 2: DMX to DALI converter
- 3: DMX to PWM low speed converter
- 4: DMX to PWM high speed converter

Any start address or DMX personality setting performed via DMX RDM will disable access via the external start address board (the device will no longer respond to start address board settings then). To re-initiate access via the start address board, set a start address 900...999 on the start address board temporarily.

Drive Characteristics

Using microprocessor-controlled electronic ballasts results in a unprecedented precise logarithmic control curve matching the eye's intensity sensitivity very closely. Thus the whole dimming range (1%...100%) seems completely linear to the eye.

DSI cuts the DMX control range (256 steps) into two halves to generate two decades of intensity (from 1% to 10% and from 10% to 100%). Thus a DMX input value of 001 represents a output intensity of 1%, a DMX input value of 128 represents a output intensity of 10% and a DMX input value of 255 represents a output intensity of 100%.

DALI cuts the DMX control range (256 steps) into three thirds to generate three decades of intensity control (from 0.1% to 1%, from 1% to 10% and from 10% to 100%). Thus a DMX input value of 087 would represent a output intensity of 1%, and all values from 001 to 086 would do the same because there a no electronic ballasts available worldwide which can dim lower than 1%. This, however, would make 1/3 of the fader control range useless.

To obtain the same behaviour as with DSI devices the 3004B-H stretches the remaining 2/3 (170 steps) of the DMX control range to full scale. Thus smooth fades in DALI mode may appear somewhat "rougher".

Electronic Ballasts

The electronic ballasts are connected to connector CN4. Each output has two terminals, light grey or orange (output drive signal, +) and dark grey (common GND, -). SOUNDLIGHT PCA electronic ballasts are insensitive to polarization of the drive signal, thus terminal connections may be interchanged. When using other brands, make sure to obey correct polarization of the drive signal.

Each output may drive up to 8 ballasts maximum. Overloading outputs may trigger the internal electronic fuse and shut down all outputs until the fault is removed.

Installation of electronic ballasts must only be carried out by trained and qualified technicians. Electronic ballasts must be connected to mains voltage; interchanging power supply and control lines will damage both, ballast and decoder. Check your wiring thoroughly before powering up your system.



electronic ballasts for single and dual tube operation: available for fluorescent tubes
18W / 36W / 58W in T8 format 1nd 14W / 21W / 28W / 39W in T5 tube format

TECHNICAL DATA

Dimensions:	65 mm x 105 mm x 65 mm
Power supply:	230V AC approx 5W
DMX IN:	1 Unit Load
DMX OUT:	fed thru
Ballast Out:	12V pulse signal DSI / DALI
Order Code:	3804B-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



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 is warranted against defects in materials and workmanship for a period of 12 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 3804B-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).

INTERNET-HOTLINE

Please check our internet domain <http://www.soundlight.de> for new versions, updates etc. If you have any comments which may be worth considering, please send a message to support@soundlight.de. We will check your message and reply accordingly.