SOUNDLIGHT
The DMX Company

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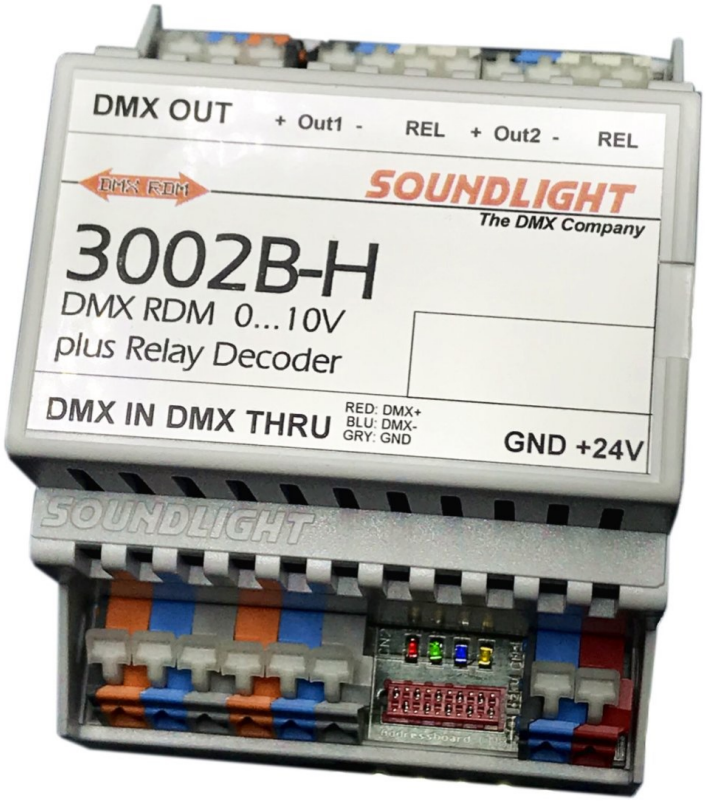
OPERATING MANUAL

DMX Demultiplexer 3002B-H Mk1



DMX RDM

RoHS compliant

SOUNDLIGHT *The DMX Company* Bennigser Strasse 1 30974 Wennigsen Tel. 05045-91293-11

Thank you for choosing a SOUNDLIGHT device.

The SOUNDLIGHT DMX Demux Interface 3002B-H is a intelligent DMX demultiplexer decoding digital data complying with standards USITT DMX512, ANSI E1-11 DMX512-A and DIN 56930-2 as well as ANSI E1-20 DMX RDM. The interface drives two analog outputs 0...+10V and two relay contact outputs The decoder 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 / DIN

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

- **integrated hysteresis**
  Adjustable hysteresis(for settings selactable) ensures flicker free switching

- **simple supply**
  The power supply is from standard low voltage 24V DC

- **signal loss**
  In the case of a loss of the drive signal a pre-definable action will be taken.

- **cost-effective**
  The SOUNDLIGHT 3002B-H is a cost-effective solution for many purposes.

UNPACKING

Please unpack carefully and check that all items are intact. When leaving our factory, the decoder has been in good condition. In case of damage during transport please notify the carrier immediately. Please note that individual deadlines may apply to claim transport damages. We will only be able to replace goods damaged during transit if we receive a written and signed confirmation issued by the freight forwarder. Make sure you receive such a document and send to us a.s.a.p.

When unpacking, you should identify these items:

* the interface 3002B-H RDM
* this manual

All parameters can be set or modified remotely using a suitable **DMX RDM** controller. Alternatively, some parameters can be set using a optional start address board. Please note that a start address board (e.g. 3000P2) is NOT included with DIN rail mount devices. A start address board (required to set DMX start address, DMX personality or DMX HOLD mode) must always 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 style alike.

Applications

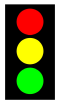
The DMX analog/relay decoder 3002B-H is ideally suited for all kinds of signal switching applications. It features a address shifted DMX OUT, two analog control outputs 0...+10VDC and two potential-free high-power N.O. output relay contacts, and features high noise immunity. Applications include signal processing and power switching.

Safety Notice

Attention! This devices may use mains power 115...230VAC. Mains power can be dangerous to life. Applicable electrical safety rules must be obeyed when installing and operating the device. Make sure, that all wiring is only carried out in un powered state.

The DMX decoder 3002B-H is intended for use in dry environments. It must be installed in a suitable electrical cabinet. The operating conditions (see chapter „Technical Data“ must be met at all times.

DANGER! Non-compliance may cause injuries or device failures

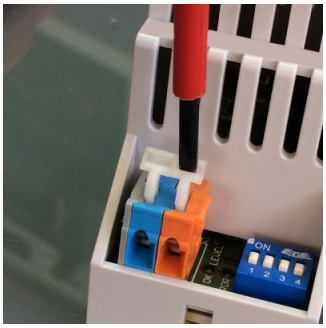


NOTICE: Signalling and device information

SETUP. Setup and Configuration

Cage Clamps

The decoder 3002B-H consists of 5 terminal blocks. Terminals are based on patented screwless WAGO cage clamp technology, which securely prevents loose connections and guarantees safe electrical contact under all circumstances and at all times. Use a standard **flat blade** screw driver and press the lever to open the terminal, then 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.

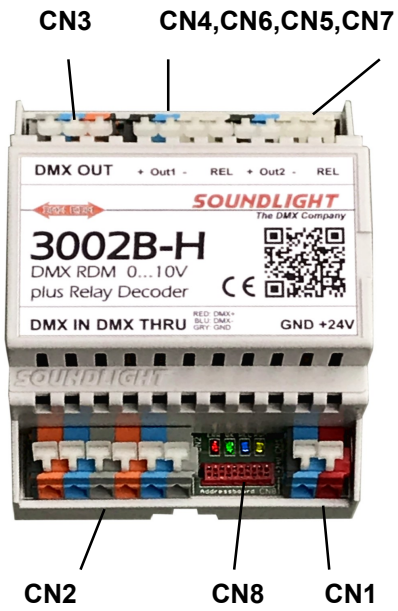


Please refer to chapter „Connectors“ for more information.

Connectors

The demultiplexer 3002B-H consists of two 3-pin connectors for the control signal (CN2: DMX RDM IN resp. DMX RDM THRU), as well as the DMX data output. Additionally, there are cage clamp connectors for power supply (24VDC).

Both analog control outputs are referenced to GND. The relay output contacts are potential-free and consist of a N.O. (normally open) contact. The relay can be electrically inverted to provide a N.C. (normally closed) contact if needed.



CN2 **DMX IN / DMX THRU**

grey	GND, Masse	(XLR Pin1)
blue	DMX-	(XLR Pin2)
orange	DMX+	(XLR Pin3)
grey	GND, Masse	(XLR Pin1)
blue	DMX-	(XLR Pin2)
orange	DMX+	(XLR Pin3)

CN3 **DMX OUT**

grey	GND, Masse	(XLR Pin1)
blue	DMX-	(XLR Pin2)
orange	DMX+	(XLR Pin3)

CN1 **Power Supply 24V DC**

blue	0V
red	+24V DC

CN4, CN5 **Analog Output 0...+10V DC**

blau	0V
rot	+24V DC

CN6, CN7 **Relay Output (N.O.)**

light grey
light grey
Contact Voltage max. 250V Contact Current max. 6A

CN8 **Startadressboard**

Connector to connect a start address board 3000P2
NOTICE: Please watch out: connector orientation pin lefthand!

DMX Personality

The decoder can be operated in four modes („DMX Personality“). The suitable personality can be selected using your prefererred RDM controller, or can be set using a optional start address board 3000P2.

NOTICE: *All configuration settings can be performed via DMX RDM. Thus a special start address board is not necessary. A start address board can optionally be used to set the DMX start address, the DMX personalioty and the DMX HOLD mode. Start address boards are not comprised with delivery. Start address boards are optional parts which (unless stated otherwise) can be used for all or decoders. Start address boards should be unplugged when programming is complete.*

Personality	Description	DIP 3	DIP 4
1	Separate Addresses for Analog out and Relay, Relay Trigger Level 30% / 70% DMX Output from start address 001	OFF	OFF
2	Same Address for Analog out and Relay, Relay Trigger Level 0% / 1% DMX Output from start address 001	OFF	OFF
3	Separate Addresses for Analog out and Relay, Relay Trigger Level 30% / 70% DMX Output from start address nnn	ON	OFF
4	Same Address for Analog out and Relay, Relay Trigger Level 0% / 1% DMX Output from start address nnn	ON	ON

DMX Hold

The HOLD mode feines the behaviour at signal loss. A signal loss will be assumed, when no valid data have been received for mor than 1250ms (1.25 seconds) as defined by the DMX standard ANSI E1-11 DMX512-A.

Hold Mode	Function	Comment
0	all OFF	At signal loss, all outputs will be set to OFF
1	all ON	At signal loss, all outputs will be set to ON
2	„Last Look“	At signal loss, all outputs will keep the last valid setting.

Adressboard

The Start Address defines the number of the first DMX data slot to be used as control signal. Beginning with this slot, all subsequent slots are used until the number of slots needed is reached. The number of slots used is defined by the DMX personality.
The DMX output (CN3) uses its own start adress, which can only be set using RDM.

The start address is defined using PID 00F0 (START_ADDRESS) and can vary from 001 thru 512. Since -depeinding on personality selected- up to four slots can be occupied, the maximum start address must not extend 509 to prevent cutting off data.

The DMX start address can alternatively be set using a start address board 3000P2.

IMPORTANT NOTICE: *As soon as a start address baord is connected, all start address board settings prevail. Changing these settings from DMX RDM is prohibited as long as the start address board is connected.*

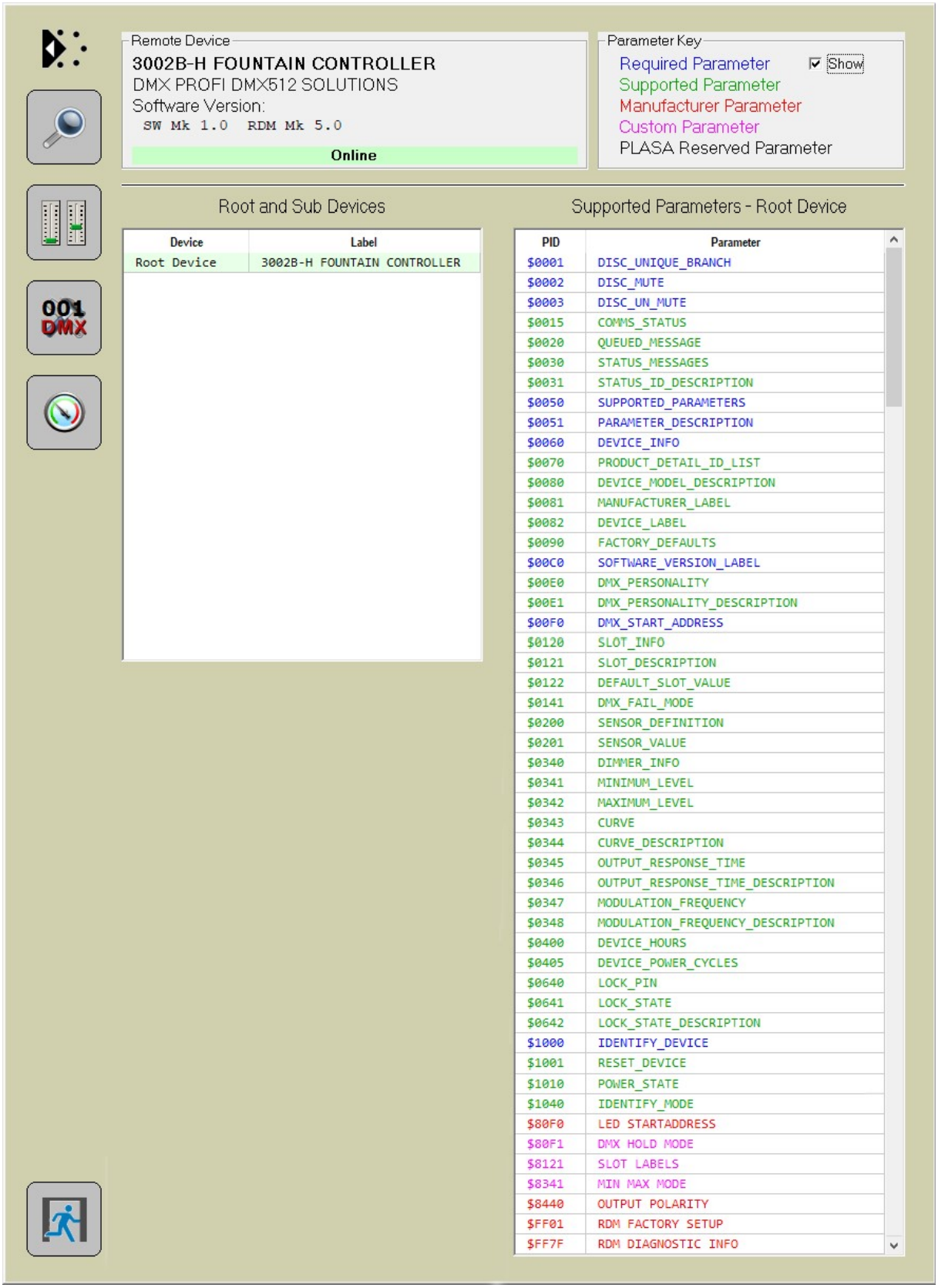
Signalling

Four colored LEDs located next to the start address board connector CN8 indicate system status.

LD1	ERROR	red	blinks at missing DMX Data input
LD2	OK	green	steady at DMX Data reception blinks when a wrong start address setting is detected
LD3	RELAIS	blue	steady when at least one relay is active
LD4	RDM	yellow	blinks at DMX RDM data transfer steady when parameters have been set by RDM programming

DMX RDM Properties

The DMX decoder 3002B-H is compatible with DMX RDM Standard 1.0. The device is recognized as DEMULTIPLEXER. Select the appropriate DMX personality to set the mode of operation.



RDM Special Functions

FUNCTION $80F0 DMX OUT STARTADDRESS

This function sets the DMX start address used for the DMX 512 data output (e.g. for external LED lighting):

CALLS:	GET	<param = keine> (no parameters needed)
	Return:	<param=StartAddress [2 Bytes]>
	SET	<param=StartAddress [2 Bytes]>
	Return:	<param=none> (no parameters returned)
		Parameter: StartAddress 1...512 (dec) 0001...0200 (hex)

How to proceed: Enter the desired start address and press <ENTER>. Please check your RDM controller manual for the correct data format; entries may be expected in decimal format, or in hexadecimal format. Use the Windows Calculator in PROGRAMMER mode to easily convert between numbering systems.

FUNCTION $8440 OUTPUT POLARITY

This function sets the Polarity of the relay outputs. Both outputs are affected simultaneously.

CALLS:	GET <param = keine> (no parameters needed	
	Return:	<param=Polarität [1 Byte]>
	SET <param=Polarität [1Byte]>	
	Return:	<param=none> (no parameters returned)
		Parameter: Polarity 0 (dec), 255 (dec) 00 (hex), FF (hex)
	Polarity = $FF	all normal polarity (standard mode)
	Polarity = $00	all inverted polarity

Further RDM Info

For more information regarding DMX RDM pls check the RDM Protocol Group website (www.rdm-protocol.org), or check: *www.soundlight.eu/rdm*

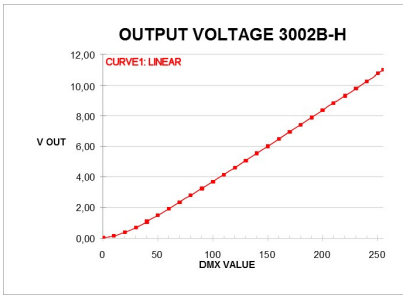
The full SOUNDLIGHT RDM command set can be found in the RDM MANUAL, which can be downloaded from our website: *www.soundlight.eu/produkte/manuals*
There you can also download a free copy of our RDM MANUAL.

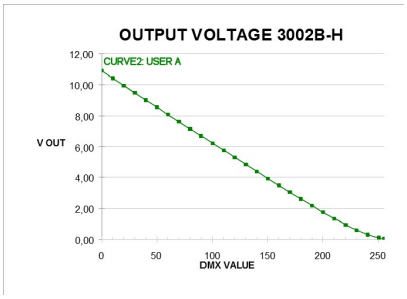
Technical Data

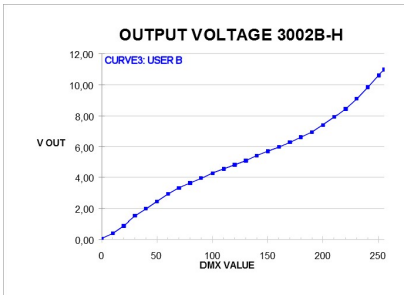
Dimensions:	DIN Rail Module (REG) 4 units width
Power Supply:	24V DC 125mA
DMX IN:	1 Unit Load, optoisolated
Protocol DMX IN:	USITT DMX512/1990, DIN56930-2, DMX512-A, DMX RDM
DMX THRU:	fed thru
DMX OUT:	1 Universe (max. 512 Data Slots/Kanäle)
Protocol DMX OUT:	DMX512-A
Outputs:	2x Analog, 2x Relay, 1x DMX512
Analog OUT:	0V...+10V max. 2mA
Relay OUT:	max. 250V max 6A potential-free contact
Operating Temperature:	0...+50°C
rel. humidity:	non-condensing
BestellNr.:	3002B-H

Analog Outputs

The analog outputs are following the DMX data input linearly and range from 0V to +10V. The minimum value and the maximum value can be set using RDM functions 0341: MINIMUM_LEVEL or 0342: MAXIMUM_LEVEL. You can select one of three output curves, where curves 2 and 3 are pre-defined but can be freely modified by the user.







Disturbances

If a trouble-free operation cannot be guaranteed, disconnect the relay card 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.

Limited Warranty

This DMX interface 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.

CE Conformity

CE

This DMX interface is microprocessor controlled and uses high frequency. The interface has been tested in our EMC lab to comply with EN55015 and IEC65/144. To ensure the best performance regarding radiated and conducted emissions we suggest to install the interface in a closed, conductive (e.g. metal) housing, which must be connected to GND.

Please make sure that shielded data cable is used and the shield is connected properly to the GND pin. Shield must never make contact to other signal lines.

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.

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).

Service

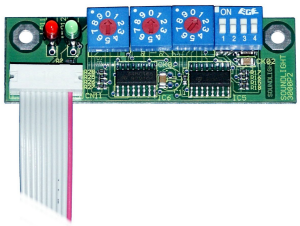
There are no parts within the DMX relais card 3002B-H which require the user's attention. Should your unit require servicing, please send it to the factory, freight paid.

Accessories

Setting the DMX start address, the DMX personality, or the DMX HOLD mode and other parameters requires a suitable DMX RDM controller or a start address board. We recommend these devices:

DMX START ADDRESS BOARD 3000P2

Address board to set start address, personality and DMX HOLD mode.



Address boards are not contained with delivery and must be ordered separately.

For more info refer to: www.soundlight.de/produkte/3000p2

DMX RDM CONTROLLER GET/SET USBRDM-TRI

The USBRDM-TRI Interface connects via USB and comes with RDM controller software „GET/SET“. This software allows to administer all
RDM supported functions of the DMX decoder..

The USBRDM-TRI Mk2 can be inserted into a existing DMX line (e.g. from light control desk to fixtures) to add full DMX RDM functionality for legacy setups.

For more info refer to: www.soundlight.de/produkte/usbrdm-tri2

Appendix: Relay Data

Please note thast all data are given for resistive load only. When driving inductive loads or capacitive loads (e.g. electronic power supplies) a suitable derating factor must be used - we recommend to apply a derating of 50% when switching highly complex loads.

Also make sure that spark-limiting or inrush-current limiting devices are used when switching high inductive or capacitive loads!

Approbationen

Appendix: Known Issues

When using the 3002B-H in RDM mode, always place the device on the **direct uplink** for configuration and setup purposes. Do not use splitters to drive the 3002B-H, or the device may not be recognized properly.

Product Homepage

You can find the product homepage at:

http://www.soundlight.de/produkte/3002b-h

There you can find actual product info, FAQ, more application information and available accessories.