

## OPERATING MANUAL

### DMX DC Motor Driver 3911A-H Mk1



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## Thank you for choosing a SOUNDLIGHT device.

The SOUNDLIGHT DMX DC Motor Driver 3911A-H is an intelligent DMX decoder to convert digital data complying with standards USITT DMX512/1990, ANSI E1-11 DMX512-A, DIN 56930-2 and ANSI E1-20 DMX RDM into control signals for driving a DC motor. The 3911A-H can be used with all standard lighting 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 and can easily be adapted to any change in protocol definition.
- **signal feed-thru**  
The DMX data input is fed to DMX THRU terminals. This allows easy integration in complex multi-device wirings.
- **simple supply**  
The power supply is from standard voltage 24VDC.
- **signal loss**  
In the case of a loss of the drive signal a pre-definable action will be taken.
- **cost-effective**  
The SOUNDLIGHT SWINGC4 is a cost-effective solution for many purposes.

## General

The DMX DC Motor Driver 3911A-H is ideally suited for speed control of all kinds of standard DC motors. The 3911A-H must not be used for hazardous applications. Certain applications may require additional safety measures (see below). The 3911A-H is intended for speed control, it does not change polarity or direction.

## 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. Please note that specific 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 3911A-H RDM
- \* this manual

*Please note that a start address programming adaptor (3000P, 3003P, 3005P or 3006P) 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 3911A-H consists of 4 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 on next page.

## Applications

The decoder 3911A-H is intended to drive DC motors at variable speed using a PWM-driven motor driver. It can be used for 12V or 24V motors for maximum motor currents up to 10A.

### IMPORTANT NOTICE

*The control protocol DMX512 is not intended to control drives and scenery which could be hazardous to man or materials (see standard ANSI E-11 DMX512-A, available from [www.ansi.org](http://www.ansi.org)). This restriction must be similarly applied to previous standards USITT DMX512/1990, DMX56930-2 or standards based on E1-11, such as ANSI E1-20 DMX RDM.*

*DMX512 does not contain any mechanisms or procedures that allow instant system shutdown in case of malfunction or failure. Thus it is in the sole responsibility of the user to install a second, independent safety circuit to shutdown the application in case of trouble.*

The unit can be configured using DMX RDM, and setup can be performed using any standard DMX

RDM controller. We suggest to use the JESE GET/SET DMX RDM controller RDM-TRI (www.jese.co.uk), being the most advanced, versatile and reliable controller software available.

## Connections

<b>CN1</b>	<b>MOTOR OUTPUT</b>			CN1	CN5	
	1	red	+12/24VDC (fused)			
	2	d'grey	Output: DRIVE 0V			
<b>CN2</b>	<b>DMX DATA THRU</b>					
	1	grey	GND			
	2	blue	-DMX			
	3	red	+DMX			
<b>CN5</b>	<b>POWER SUPPLY</b>			CN6	CN8	CN2
	1,2	blue	Power Supply 0V, GND			
	3-6	red	Power Supply +24VDC			
<b>CN6</b>	<b>DMX DATA INPUT</b>					
	1	grey	GND			
	2	blue	-DMX			
	3	red	+DMX			
<b>CN8</b>	<b>Start address board (10-pin)</b>					
	To connect a SOUNDLIGHT start address board 3000P or 3006P.					

## Signal Indicators

The status of the 3911A-H module is signalled with three indicator LEDs.

**green: OK**

A valid DMX control signal is present.

**red: ERROR**

normally: off

blinking: no valid DMX signal present

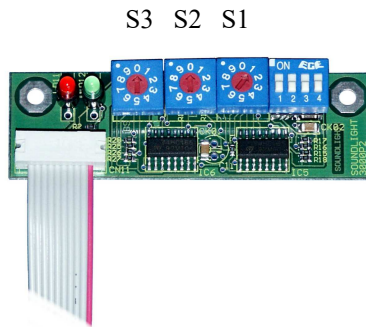
**Yellow: RDM**

Activated when a RDM programming has taken place. Mechanical address switches are deactivated then.

## Start Address

The start address can be set by DMX RDM using the START\_ADDRESS command (PID \$00F0). The start address defines the address of the first data slot used by the decoder. Valid start address settings include start addresss 001 thru 512-(number of slots used).

When using a mechanical start address board 3000P the coding switches give the start address directly. No binary conversion as needed with DIP switches necessary.



S1: Ones  
S2: Tens  
S3: Hundreds

When setting the address to 000 (invalid setting for DMX data reception), all outputs will be set to „off“ regardless of DMX data.

The decoder can be operated with or without start address board connected.

### **When using a standard switch start address board 3000P:**

*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.*

## DMX HOLD Mode

The DMX HOLD mode defines the behaviour at signal loss. Signal loss is defined as loss of a valid DMX control signal for more than 1 second. Therev are three options present, which can be selected by RDM command DMX\_HOLD (PID \$80F1):

Parameter	Setting
00	all outputs to OFF: Motor stops
01	all outputs to ON: Motor runs at full speed
02	keep last look: operation continues as if last received value was present

Setting the HOLD mode can also be performed using the DIP switches onboard the 3000P address board.

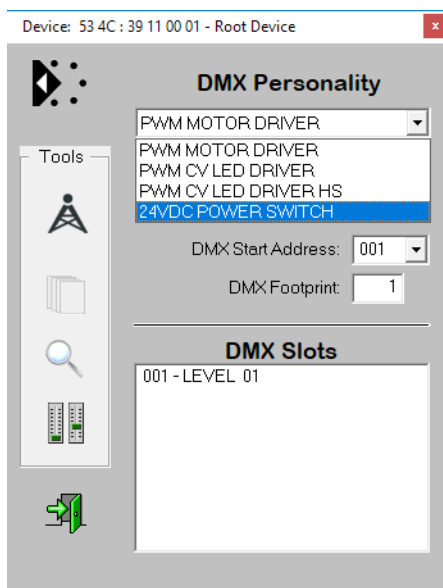
**DIP-SWITCH 1: HOLD MODE**  
*keeps the actual motor position at signal loss*  
ON: HOLD Mode activated („keep last look“)  
OFF: no HOLD mode

**DIP-SWITCH 2: SAFETY LEVEL**  
*Motor speed at signal loss when no HOLD mode activated*  
ON: Motor at full speed  
OFF: Motor off

# DMX Personality

The different operating modes are also known as „DMX PERSONALITY“. The DMX personality can be set by DMX RDM using command DMX\_PERSONALITY (PID \$00E0) or a external address board. There, DIP switches 3 and 4 will set the personality.

PERSONALITY No	PERSONALITY DESCRIPTION	DIP3	DIP4
1	PWM MOTOR DRIVER	OFF	OFF
2	PWM CV LED DRIVER	OFF	ON
3	PWM CV LED DRIVER HS	ON	OFF
4	24VDC POWER SWITCH	ON	ON



*Personality selection using a DMX RDM controller (shown with JESE GET/SET software)*

## **PERSONALITY 1: PWM MOTOR DRIVER**

This is the standard operating mode for speed control of the connected DC motor. 12V or 24V motors can be used (depending on power supply; voltages must match!). Output frequency is set to 65 Hz. Maximum output current is 10A

**CAUTION: At high loads, fuse can get very HOT.**

## **PERSONALITY 2: PWM CV LED DRIVER**

This is the standard operating mode for intensity control of CV LED assemblies. 12V or 24V LEDs can be used (depending on power supply; voltages must match!). Output frequency is set to 245 Hz. Maximum output current is 10A

**CAUTION: At high loads, fuse can get very HOT.**

### **PERSONALITY 3: PWM CV LED DRIVER HIGH SPEED**

This is a operating mode for intensity control of CV LED assemblies, using high speed PWM output. 12V or 24V LEDs can be used (depending on power supply; voltages must match!). Output frequency is set to 245 Hz. Maximum output current is 8A (reduced current due to higher switching losses).

**CAUTION: At high loads, fuse can get very HOT.**

### **PERSONALITY 4: POWER SWITCH**

This mode is intended as power switch to switch 12V or 24V loads (depending on power supply; voltages must match!). Output is OFF for DMX levels <50%. output is ON for DMX levels >50%. Maximum output current is 10A

**CAUTION: At high loads, fuse can get very HOT.**

# DMX RDM

The 3911A-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, PID \$80F1) 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).

## NOTICE when using a start address board 3000P:

*If the start address or the DMX personality has been changed using DMX RDM, mechanical address switches become inactive (blocked). To re-enable start address switches, temporarily set any address from 900...999 (simply set the "9xx" digit). This will re-enable switches.*

## DMX RDM Properties

The 3911A-H RDM is fully compliant to DMX RDM Standard ANSI E1-20 V1.0. The device will be identified as MOTOR ROTATOR in SCENIC DEVICES category and can be configured to four modes of operation (DMX PERSONALITY)

PERSONALITY No	PERSONALITY DESCRIPTION	DIP3	DIP4
1	PWM MOTOR DRIVER	OFF	OFF
2	PWM CV LED DRIVER	OFF	ON
3	PWM CV LED DRIVER HS	ON	OFF
4	24VDC POWER SWITCH	ON	ON

Selecting the appropriate DMX PERSONALITY will set the required mode of operation.

Special RDM functions allow to monitor the system. All functions are compliant with the RDM standard and can be operated from any standard RDM controller. We suggest to use the JESE GET/SET controller to setup the system. For more information about DMX RDM and its possibilities pls check [www.rdm.soundlight.de](http://www.rdm.soundlight.de)

Special RDM functions:

RESET\_DEVICE: calling with parameter =1 (\$01) causes a warm reset  
calling with parameter = 255 (\$FF) causes a cold reset

DEVICE\_POWER\_CYCLES: reads the number of device startups



Device: 53 4C : 39 11 00 01

Remote Device  
 SOUNDLIGHT The DMX Company  
**3911A-H Motor Driver Decoder**  
 Software Version:  
 SW Mx 1.0 RDM Mx 5.0

Parameter Key  
 Required Parameter  Show  
 Supported Parameter  
 Manufacturer Parameter  
 PLASA Reserved Parameter

Tools  
 Search  
 DMX 001  
 Info

Root and Sub Devices

Device	Label
Root Device	3911A-H Digital Motor Driver

Supported Parameters - Root Device

PID	Parameter
\$0001	DISC_UNIQUE_BRANCH
\$0002	DISC_MUTE
\$0003	DISC_UN_MUTE
\$0015	COMMS_STATUS
\$0020	QUEUED_MESSAGE
\$0030	STATUS_MESSAGES
\$0031	STATUS_ID_DESCRIPTION
\$0050	SUPPORTED_PARAMETERS
\$0051	PARAMETER_DESCRIPTION
\$0060	DEVICE_INFO
\$0070	PRODUCT_DETAIL_ID_LIST
\$0082	DEVICE_LABEL
\$0090	FACTORY_DEFAULTS
\$00C0	SOFTWARE_VERSION_LABEL
\$00E0	DMX_PERSONALITY
\$00E1	DMX_PERSONALITY_DESCRIPTION
\$00F0	DMX_START_ADDRESS
\$0120	SLOT_INFO
\$0121	SLOT_DESCRIPTION
\$0122	DEFAULT_SLOT_VALUE
\$0200	SENSOR_DEFINITION
\$0201	SENSOR_VALUE
\$0340	DIMMER_INFO
\$0341	MINIMUM_LEVEL
\$0342	MAXIMUM_LEVEL
\$0343	CURVE
\$0344	CURVE_DESCRIPTION
\$0345	OUTPUT_RESPONSE_TIME
\$0346	OUTPUT_RESPONSE_TIME_DESCRIPTION
\$0347	MODULATION_FREQUENCY
\$0348	MODULATION_FREQUENCY_DESCRIPTION
\$0400	DEVICE_HOURS
\$0405	DEVICE_POWER_CYCLES
\$1000	IDENTIFY_DEVICE
\$1001	RESET_DEVICE
\$1010	POWER_STATE
\$1040	IDENTIFY_MODE
\$80F1	DMX_HOLD_MODE
\$8121	SLOT_LABELS
\$8341	MIN_MAX_MODE
\$FF01	RDM FACTORY SETUP

Table of RDM commands for 3911A-H

## 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).

A copy of the **DMX RDM MANUAL** can be downloaded from our website for free. Pls refer to: [www.manuals.soundlight.de](http://www.manuals.soundlight.de)

# Technical Data

Dimensions:	DIN rail module (REG) 4 units
Power supply:	12/24V DC
DMX IN:	1 Unit Load
DMX OUT:	fed thru
Protocol:	DMX512/1990, DIN56930-2, DMX512-A, DMX RDM
Motor Out:	12/24VDC, max. 10A (peak current)
Operating Temperature:	0...+50C
Order Code.:	3911A-H

## CE CONFORMITY



This DMX interface is microprocessor controlled and uses high frequency. The interface has been tested in our EMC lab to comply with DIN 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.

## 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 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 controller 3911A-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.

Updated and foreign language manuals can be downloaded from [www.manuals.soundlight.de](http://www.manuals.soundlight.de)

The 3911A-H product page can be found at [www.soundlight.de/produkte/3911A-H](http://www.soundlight.de/produkte/3911A-H)

# 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 on-board 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!***