![SOUNDLIGHT - The DMX Company]

OPERATING MANUAL
3704A-H Current LD Driver Mk1

Thank you for choosing a SOUNDLIGHT device.

The SOUNDLIGHT DMX LED DRIVER 3704A-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 curret controlled LEDs. The 3704A-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 an 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 to 48VDC.

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

- **cost-effective**
  The SOUNDLIGHT 3704A-H is a cost-effective solution for many purposes.

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 3704A-H
*   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 3704A-H consists of 8 terminal blocks. Terminals are based on patented 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

Die DMX LED power supply 3704A-H is best suited for all control applications, where up to four individual LED assemblies (e.g.. R/G/B/W) must be controlled individually. Each LED circuit is connected individually using 2 wires. Using a 48V power supply, max. load can be 0,7A@36V max. string voltage (equivalent to max. 25W LED power).
The maximum total power (all outputs combined) must never exceed 120W.

The 3704A-H is best suited for use with GRANDY SPOTS.

Notice ⚠️

Safety Notice: This device uses DC voltage 48V. DC voltage can be dangerous to life. All relevant safety measures must be taken, installation and application of high power drivers must only be carried out by skilled and trained electricians. **Connecting and wiring is only allowed in unpowered state.** There are no parts within the 3704A-H which require accesss or your attention. Service must only be performed by authorized service stations. Opening and modifying the device may void warranty and your permission to operate the device.

Connections

The 3704A-H consists of these inputs and outputs:

CN1   **DMX DATA INPUT**
  1   grey   GND
  2   blue   -DMX
  3   red   +DMX

CN2   **DMX DATA THRU**
  1   grey   GND
 2   blue   -DMX
  3   red   +DMX

CN3   **LED DRIVE OUTPUTS**
*All LEDs must be connected using 2 wires (+/-). Make sure, that ANODE (+) and CATHODE (-) are not reversed, shorted or connected to other terminals, since this would disable the internal regulator which might damage components or LEDs. **Never** connect or disconnect LEDs while the device is powered!*

  1   red   LED ANODE   (+)
  2   blue   LED CATHODE   (--)

CN7   **POWER SUUPLY 24...48V DC**

  1   red   +48V
  2   red   +48V
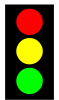 3   blue   0 V
  4   blue   0 V
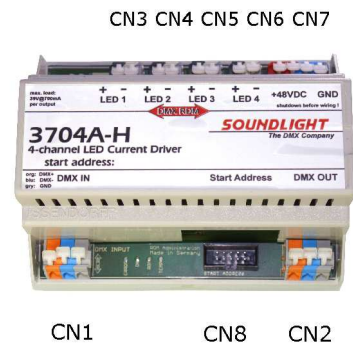
Please refer to the picture above to identify the position of the respective terminals. Read the wiring instructions before installing the unit.

CN8   **Start address board (10-pin)**
           To connect a SOUNDLIGHT start address board 3000P or 3006P.

Signal Indicators

The status of the 3704A-H is signalled with three indicator LEDs.

green: **OK**
A vaild DMX conrol 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.

red: **Overtemperature**
Signalling overtemperature when temperature management is enabled..

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 adresss 001 thru 512-(number of slots used).

S3 S2 S1
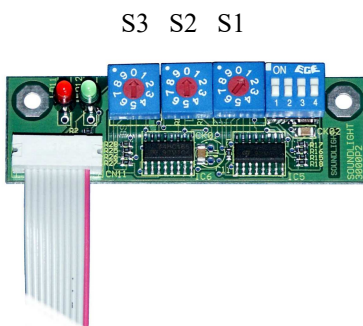
When using a mechanical start address board 3000P the coding switches give the start address directly. No binary conversion as needed with DIP switches necessary.

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. 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:	all LEDs off
01	all outputs to ON:	all LEDs set to 100%
02	keep last look:	operation continues as if last received values were 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**
Output level at signal loss when no HOLD mode activated
ON: All outputs go to „full" (100%)
OFF: All outputs go to „off" (0%)

DMX Personality

The personality defines the mode of operation. It can be set using DMX RDM or a optional start address board 3000P (**DIP-SWITCHES 3/4**) or a LCD startaddress board 3006P.

NOTE: *When the start address, the personality or the hold mode has been modified using DMX RDM, the 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.*

PERSONALITY1:   4-ch mode, je 1 LED
DIP3 = OFF   DIP4 = OFF
Four outputs can be controlled individually

PERSONALITY2:   4-ch w/ Master
DIP3 = OFF   DIP4 = ON
The decoder used 5 DMX data slots and adds a common master fader

PERSONALITY3:   2-ch mode, 1/2, 3/4
DIP3 = ON   DIP4 = OFF
Two outputs are controlled simultaneously

PERSONALITY4:   1-ch mode, OUT 1-4
DIP3 = ON   DIP4 = ON
Four outputs are controlled simultaneaously
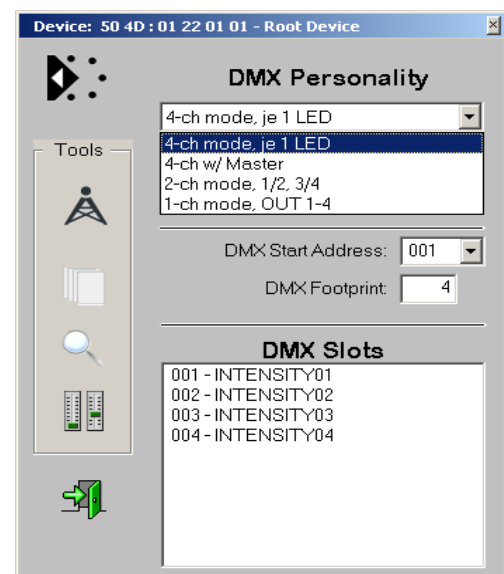
Connecting LEDs

The 3704A-H drives *current controlled* LEDs. Current controlled LEDs are LEDs or LED arrays driven by varying constant current . Typical values for constant current drives are 350mA or 700mA. The maximum LED voltage must not exceed 36V per output.

IMPORTANT NOTICE: All LEDs must be connected using 2 wires (+/-). Make sure, that ANODE (+) and CATHODE (-) are not reversed, shorted or connected to other terminals, since this would disable the internal regulator which might damage components or LEDs. **Never** connect or disconnect LEDs while the device is powered!

Technical Data

Dimensions:	DIN rail mounting, 6.5 units width (114mm)
Power supply:	48V DC max. ca. 120W (124VA)
Power supply limits:	min. 24VDC, max. 50VDC
DMX IN:	1 Unit Load
DMX OUT:	passiv
DMX Slots:	4 (5)
LED power outputs:	4
Output connectors:	2 cage clamps each, Anode and Cathode
Output voltage:	0...36V
Output current:	0...350mA / 0...700mA (configurable)
IP rating:	IP20 - dry rooms only
Operating temperature:	0-50 °C
Storage temperature:	-20...+80 °C non-condensing
External temperature sensor:	NTC Sensor 10kOhm 4480K; U_{max}=5VDC
Order code:	3704A-H

To connect a external NTC sensor, pls refer to separate temperature sensing guidelines.

DMX RDM

The SWINGC4 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).

NOTE: *When the start address, the personality or the hold mode has been modified using DMX RDM, the 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 3704A-H is fully compliant to DMX RDM Standard ANSI E1-20 V1.0. The device will be identified as LED DRIVER in CONSTANT CURRENT category and can be configured to four modes of operation (DMX PERSONALITY):

PERSONALITY1:   4-ch mode, je 1 LED
> *Four outputs can be controlled individually*

PERSONALITY2:   4-ch w/ Master
> *The decoder used 5 DMX data slots and adds a common master fader*

PERSONALITY3:   2-ch mode, 1/2, 3/4
                Two outputs are controlled simultaneously

PERSONALITY4:   1-ch mode, OUT 1-4
                Four outputs are controlled simultaneaously

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**

Special RDM functions:
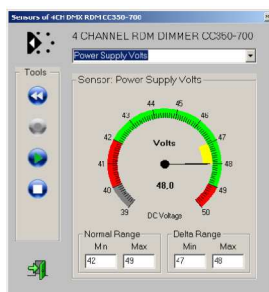RESET_DEVICE: calling with parameter =1 ($01) causes a warm reset
                                     calling with parameter = 255 ($FF) causes a cold reset

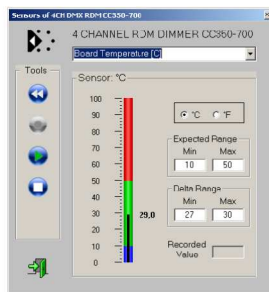DEVICE_POWER_CYCLES: reads the number of device startups

Sensors

The LED driver 3704A-H features four sensors, which can be read using DMX RDM:
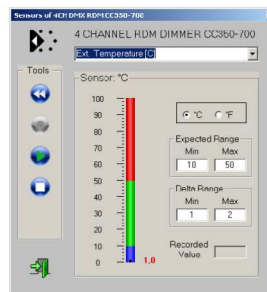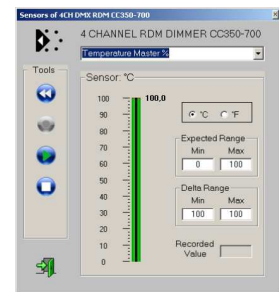
Sensor 1	Sensor 2	Sensor 3	Sensor 4
Power Supply	Elektronics temperature	LED temperature	Temperature master %

The LED temperature mask can be customized using the temperature management settings. The mask will automatically be updated at discovery.

More RDM Info

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

Product manuals and a copy of the RDM manual can be downloaded freely at:
www.manuals.soundlight.de

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 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.

SERVICE

There are no parts within the 3704A-H DMX power LED driver 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 email: *support@soundlight.de*. We will check your message and reply accordingly.

Updated and foreign laguage manuals can be downloaded from www.manuals.soundlight.de

The 3704A-H product page can be found at *www.soundlight.de/produkte/3704a-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

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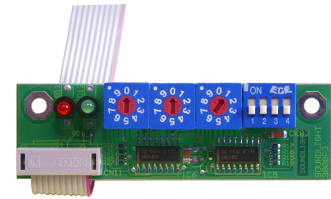
DMX START ADDRESS BOARD 3006P
www.soundlight.de/produkte/3006p

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.
Comes with licensed GET/SET software package.

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