

OPERATING MANUAL

DMX Multiplier 2101A-H Mk1.2



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Thank you for choosing a SOUNDLIGHT device.

The SOUNDLIGHT DMX Multiplier 2101A-H is an intelligent "Master Fader" complying with standard DMX512 control signals conforming to USITT DMX-512/1990, DMX512/DIN 56930 , DMX512-A or ANSI E-20 DMX512-RDM. The unit can also be controlled from analog input voltages 0...+10V DC or active architectural interfaces 1-10V. The 2101A-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.
- **simple supply**
The power supply is from standard DC voltage 15V...24VDC
- **signal loss**
In the case of a loss of the drive signal a pre-definable action will be taken.
- **cost-effective**
The SOUNDLIGHT 2101A-H is a cost-effective solution for many purposes.

APPLICATIONS

The SOUNDLIGHT DMX Multiplier 2101A-H is intended to scale a DMX512 signal. Thus all data slots are scaled due to the master input; the complete universe will be dimmed. The 2101A-H Mk1.2 features a table function to assign each individual data slot to one of 256 selectable master channels. Thus individual data slots can be exempt of the global master or assigned to a submaster.

You can select as master:

- any input data slot 1-255 of the second DMX input (DMX CTL)
- a 0...+10V input signal derived from an analog lighting control desk
- a 1...10V input signal derived from an architectural control system. When selecting this option, the control voltage input will automatically be coupled with an internal current source (approx. 1mA) which makes the input work with a passive control resistor or potentiometer (10kOhm).

NOMENCLATURE

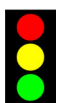
These symbols are used within this manual:



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 individual deadlines may apply to claim transport damages. Contact your carrier immediately. We will only be able to replace goods damaged during transit if we receive a written and signed confirmation of acceptance issued by the freight forwarder. Make sure you receive such a document and send it to us a.s.a.p.

NOTES

The 2101A-H does not use any controls, switches, faders, or signalling devices. All setup procedures must be performed via DMX RDM using DMX input 1. You may use any RDM compatible DMX controller capable of handling manufacturer specific commands. We recommend the JESE GET/SET controller (www.jese.co.uk) for setup procedures. All settings are retained in nonvolatile memory within the 2101A-H digital multiplier.



CONNECTORS

The DMX Multiplier 2101A-H Mk1.2 consists of terminals for four inputs and one output, plus power supply. Press lever gently, insert cable and release. Stranded wires or massive wires can be used.



CN1 **DMX IN 1** Signal input for the DMX signal to be controlled

- | | | |
|---|--------|-------------|
| 1 | grey | Common, GND |
| 2 | blue | DMX - |
| 3 | orange | DMX + |

CN2 **DMX CONTROL, DMX IN 2** Signal input for the controlling DMX signal

- | | | |
|---|--------|-------------|
| 1 | grey | Common, GND |
| 2 | blue | DMX - |
| 3 | orange | DMX + |

CN3 **DMX OUT** DMX Signal Output

- | | | |
|---|--------|-------------|
| 1 | grey | Common, GND |
| 2 | blue | DMX - |
| 3 | orange | DMX + |

CN4 **Power Supply (DC)**

- | | | |
|---|------|---------------------------------|
| 1 | red | +24V DC (15VDC to 24,5VDC max.) |
| 2 | blue | 0.0V, GND |

CN5 **Analog Input**

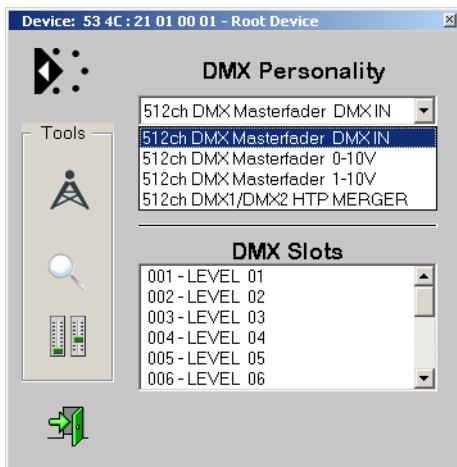
- | | | |
|---|-----------|------------|
| 1 | dark grey | 0...10V IN |
|---|-----------|------------|

The analog input is referenced to GND (0.0V). Pls note that the analog input consists of a integrated current source 1mA, which will be disabled when configured in 0...10V mode.

NOTE: Signal inputs and outputs must be connected to control signal ports only. Do not confuse with power supply terminals! Applying power to DMX or signal inputs may damage the interface seriously. Always check for correct polarity and check wiring before applying power!



DMX RDM PROPERTIES

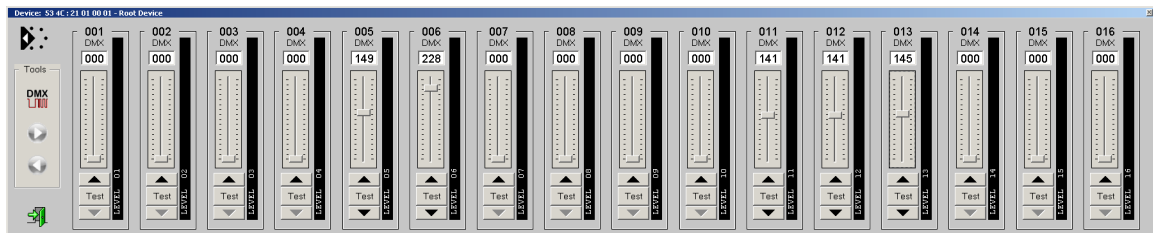


The DMX Multiplier 2101A-H complies to DMX RDM Standard 1.0. The unit must be configured via DMX RDM. The unit is recognized as signal processing device. It can be configured to four modes of operation using these DMX personalities:

- DMX Multiplier using a DMX512 control input (DMX CTL) (default)
- DMX Multiplier using a 0-10V control input
- DMX Multiplier using a 1-10V control input
- DMX Merger (HTP)

The 2101A-H will always process 512 DMX data slots (1 Universe). When using the 2101A-H as stand alone DMX RDM unit, 16 DMX data slots can be accessed from the DMX RDM controller itself. This limitation is not a general limitation in

functionality, but has been introduced to ensure smooth operation with DMX RDM controllers supporting only a limited number of null start code data slots.



PERSONALITY 1: DMX MASTERFADER DMX IN

Use port DMX IN 1 for the DMX input signal to be scaled, and use port DMX CTL for the master signal. The output signal is available from the DMX OUT port.

The master channel is reference to DMX data slot 1 by default. Using function 80F4: MASTER TABLE any other data slot can be assigned as master. See chapter RDM FUNCTIONS below.

PERSONALITY 2: DMX MASTERFADER 0-10V

Use port DMX IN 1 for the DMX input signal to be scaled, and use port ANALOG IN for the master signal. The output signal is available from the DMX OUT port. The analog voltage 0...+10V is used as master.

PERSONALITY 3: DMX MASTERFADER 1-10V

Use port DMX IN 1 for the DMX input signal to be scaled, and use port ANALOG IN for the master signal. The output signal is available from the DMX OUT port. The analog voltage 1...+10V is used as master.

As the analog input is automatically enhanced with a built-in current source (1mA) a standard variable resistor (10k) from ANALOG IN to GND is sufficient to act as master.

PERSONALITY 4: DMX HTP MERGER

Use port DMX IN 1 for the DMX input signal 1, use port DMX IN 2 (DMX CTL) for input signal 2. The output signal is available from the DMX OUT port.

The 2101A-H will act as HTP merger (highest takes precedence). Additionally, the analog input can be used as master fader to dim down (or blackout) the output signal. When not used, the ANALOG IN control input has no function.

RDM FUNCTIONS

Refer to the general RDM manual for more information about DMX RDM, its functions and possibilities. The 2101A-H features some additional RDM functions to control the behaviour of the DMX master fader.

The screenshot shows a software window titled "Device: 53 4C : 21 01 00 01". It contains the following information:

- Remote Device:** SOUNDLIGHT The DMX Company, 2101A Masterfader, Software Version: SW Mk 1.2 RDM Mk 3.1
- Parameter Key:** Required Parameter (blue), Supported Parameter (green), Manufacturer Parameter (red), PLASA Reserved Parameter (black). A "Show" button is present.
- Tools:** A vertical toolbar on the left with icons for search, device status, DMX 001, a speedometer, and an information icon.
- Root and Sub Devices:** A table with two columns: Device and Label. The first row shows "Root Device" and "2101A-H DMX MASTERFADER/M...".
- Supported Parameters:** A list of parameters with their corresponding PIDs. Parameters are color-coded: blue for Required, green for Supported, and red for Manufacturer.

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
\$0080	DEVICE_MODEL_DESCRIPTION
\$0081	MANUFACTURER_LABEL
\$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
\$0141	DMX_FAIL_MODE
\$0200	SENSOR_DEFINITION
\$0201	SENSOR_VALUE
\$0400	DEVICE_HOURS
\$0405	DEVICE_POWER_CYCLES
\$0640	LOCK_PIN
\$0641	LOCK_STATE
\$0642	LOCK_STATE_DESCRIPTION
\$1000	IDENTIFY_DEVICE
\$1001	RESET_DEVICE
\$1010	POWER_STATE
\$1040	IDENTIFY_MODE
\$80F1	DMX HOLD MODE
\$80F2	MASTER HOLD MODE
\$80F4	MASTER TABLE
\$8301	DMX FAILMODE
\$8330	PIN SETTING
\$8331	LOCK STATE
\$8332	LOCK STATE DESCRIPT.
\$8340	IDENTIFY MODE
\$FF01	RDM FACTORY SETUP

80F1 DMX HOLD MODE

80F2 MASTER HOLD MODE

The DMX HOLD MODE refers to DMX INPUT 1, the MASTER HOLD MODE refers to DMX CTL. Use these parameters to set the HOLD mode:

- 0 = no hold, at loss of data all values go to 000 (minimum)
- 1 = no hold, at loss of data all values go to 255 (maximum)
- 2 = HOLD ("last look"), last valid values will be kept intact

Mode 0 is set as default.

80F4 MASTER TABLE

This function is used to set the DMX master data slot when working in DMX personality 1. Multiple masters can be assigned; DMX CTL data slots 1...255 are available as master. Default setting is data slot 001.

GET FUNCTION

input params: <DMX IN slot # [16bit]>

return params: <DMX IN slot # [16bit]> <DMX CTL slot # [16bit]>

SET FUNCTION

input params: <DMX IN slot # [16bit]> <DMX CTL slot # [16bit]>

return params: none

sets DMX CTL slot as master for DMX IN slot

input params: FFFF (hex) <DMX CTL slot # [16bit]>

return params: none

sets DMX CTL slot as master for all DMX IN slots

DMX IN slot #: number of DMX data slot to be controlled by master.

range: 1...512 (dec), or 0001 to 0200 (hex)
65535 , or FFFF: all slots

DMX CTL slot #: number of DMX data slot controlling the intensity (master)

range: 1...255(dec), or 0001 to 00FF(hex)
0 , or 0000 (hex) = Analog In

When not used, the analog input reports value 255 (FF hex) = 100%. Thus assigning a DMX input data slot to the analog input will exempt this data slot from scaling.

Example:

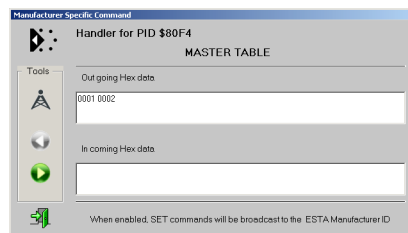
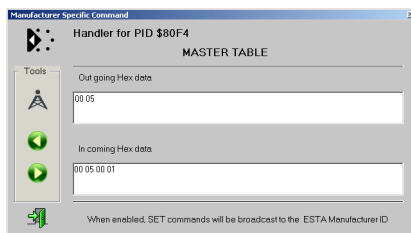
Do not scale any data slots, except

- slot 1, 7 and 13 shall be controlled from master data slot 1
- slot 2, 8 and 14 shall be controlled from master data slot 5

You have to make 7 entries to get this done:

1. enter FFFF0000 (SET) to set all slots to external control
2. enter 00010001 (SET) to control slot 1 from master 1
3. enter 00070001 (SET) to control slot 7 from master 1
4. enter 000D0001 (SET) to control slot 13 from master 1
5. enter 00010005 (SET) to control slot 2 from master 5
6. enter 00080005 (SET) to control slot 8 from master 5
7. enter 000E0005 (SET) to control slot 15 from master 5

All values in this example are given in hexadecimal format. Most RDM controllers will accept data in hexadecimal format only, some will accept decimal values. Use the Windows calculator to quickly convert from decimal to hexadecimal format. Please note that each data

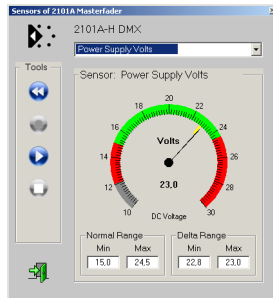


entry must consist of four hexadecimal digits. Leading zeroes must not be truncated.

PID 80F4 GET format

PID 80F4 SET format

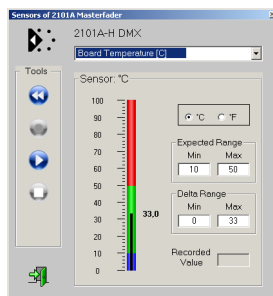
SENSORS



The device features three sensors, which can be read via DMX RDM.

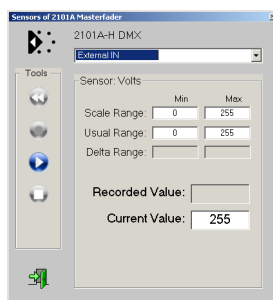
SENSOR 1: POWER SUPPLY

The sensor indicates the power supply of the 2101A-H digital master fader. The supply voltage must not be lower than 15V, and must not be higher than 24,5V DC. Exceeding these limits will automatically generate a error status message.



SENSOR 2: DEVICE TEMPERATURE

The sensor reports the electronics temperature in degrees Celsius. Please note that the inner temperature will always be higher to the ambient temperature due to power losses.



SENSOR 3: ANALOG IN

The digitized analog input value can be read on sensor 3. This is especially helpful when checking setup and installation. Input voltage 0 will be reported as "000" while input voltage 10V will be reported as value "255" (100%).

TECHNICAL DATA

Dimensions:	Module for DIN rail 35mm, width 2 Units
Power Supply:	24V DC max. 70 mA (without Load)
DMX IN:	1 Unit Load
DMX Protocol:	USITT DMX512/1990, DIN 56930-2, ANSI E1-11 DMX512-A, ANSI E1-20 DMX RDM
DMX OUT:	>20 Unit Load, buffered
Analog IN:	0...+10V +/-0,1V, Ri=200kOhm 1...10V +/- 0,1V @ 1mA
Merge-Mode:	HTP, 1 Universe
Order Code:	2101A-H

DISTURBANCES

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

CE CONFORMITY



This DMX interface is microprocessor controlled and uses high frequency (16 MHz quartz). The interface has been tested in our EMC lab to comply with the requirements for a lighting control device.

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.

SERVICE

There are no parts within the DMX master fader interface 2101A-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

Product homepage: www.soundlight.de/produkte/2101a-h

RDM homepage: www.rdm.soundlight.de