OPERATING MANUAL

DMX Merger 2002A-H Mk3.2

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

Thank you for choosing SOUNDLIGHT.

The SOUNDLIGHT DMX Merger 2002A-H is an intelligent device intended to combine two DMX signals of different signal sources to commonly control attached DMX devices. All connections are via patented cage clamp termimals to allow fast and easy installation and setup. The DMX data merger 2002A-H is not only processing, but also regenerating und buffering the DMX signal. This allows to refresh "worn" DMX links. The unit is compatible with DMX512/1990 and DMX512-A.

Unpacking

Please remove the device carefully out of the box. You should find these items:
- the DMX Merger 2002A-H
- this manual
The shipment has left our factory in good condition. Please check each part carefully. In case of damage during transport be sure to notify the shipping company immediately (obey deadlines!) and ask for a written report of damage. Claims for replacement of broken stuff can only be placed with a written and signed report from the responsible transport company.

Connectors

The Merger 2002A-H consists of two independent DMX inputs as well as two independent DMX outputs. The fifth connector is power supply (230 VAC)

CN1, CN2　　**DMX IN**
　　　　　　grey　GND, Masse　(Pin1)
　　　　　　blue　DMX-　　　　(Pin2)
　　　　　　orange DMX+　　　　(Pin3)

CN3, CN4　　**DMX OUT**
　　　　　　grey　GND, Masse　(Pin1)
　　　　　　blue　DMX-　　　　(Pin2)
　　　　　　orange DMX+　　　　(Pin3)

CN5　　　　　**Power supply 230V**
　　　　　　blue　　　　　　N
　　　　　　black　　　　　　L 230V 50 Hz AC
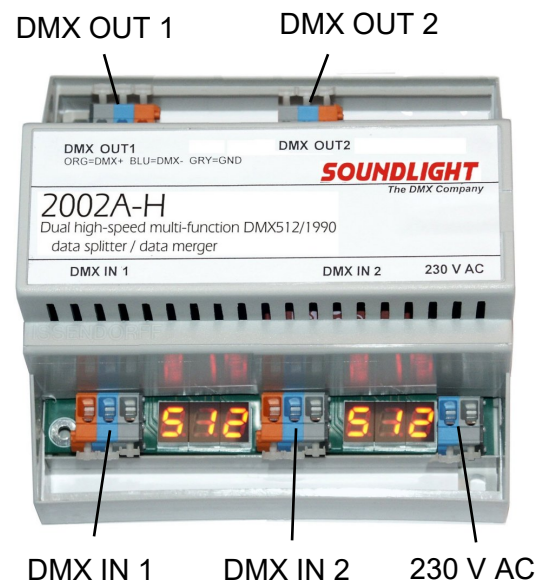
Modes of Operation

There are several modes of operation available to combine the DMX signals between inputs DMX_IN1 and DMX_IN2 and Outputs DMX_OUT 1 and DMX_OUT2.

To change the mode of operation press key repeatedly, until the desired mode is reached. Pressing the key shortly only once will display the current selection and not change status. The last valid setting is retained within memory and re-set with the next session.

MODES USING 2 INPUTS AND 2 OUTPUTS

MODE 1   **HTP - HTP**
HTP (Highest takes Precedence, the highest value prevails) is the classical method to combine two DMX signals.
Each DMX input accepts up to 512 DMX channels, the result is fed to both outputs simultaneously.
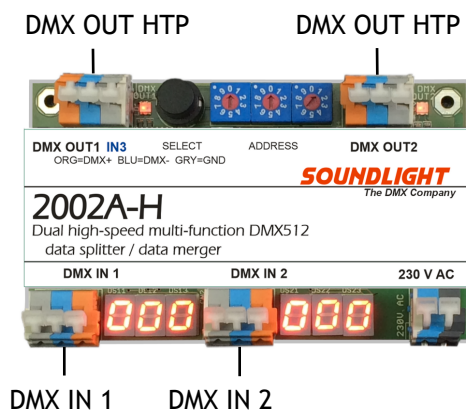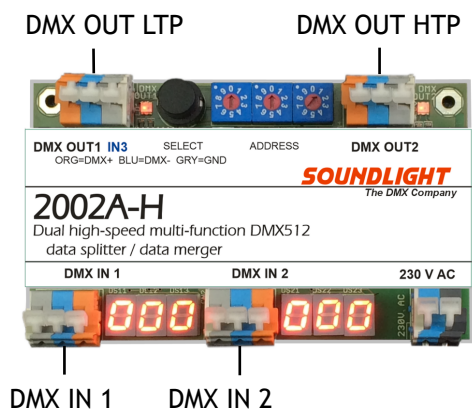

MODE 2   **LTP - HTP**
LTP (Latest takes Precedence, the last modified value prevails) is the preferred mode to control movement of intelligent moving lights. The 2002A-H combines LTP and HTP merging modes and outputs both modes on diffent outputs.
Output 1:   LTP Merging
Output 2:   HTP Merging

MODE 3   SPLIT

Split - divide: This mode will split the incoming DMX signal to two outputs. As
DMX_IN2 is inactive, the associated display will remain blank.
The split address is fixed to 257. This results in two output strings:
for example:
Input signal on   DMX IN 1:   Channel 001 - 512
Output on   DMX OUT1:   Channel 001 - 256
Output on   DMX OUT2:   Channel 257 - 512   as   001 - 256

DMX OUT 1-256   DMX OUT 257-512
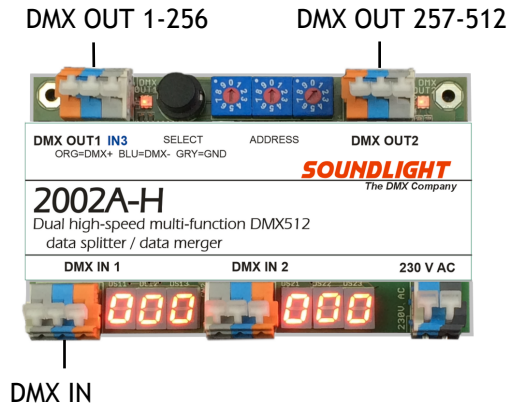
DMX IN

MODE 4   APPEND

Append - to combine: This is the reverse operation to the SPLIT mode. Again, the
append address is fixed to 257, and both outputs are fed with the same signal.
DMX channels 1...256 of input DMX_IN1 are output as channels 1...257 in the com-
bined output signal, DMX channels 1...256 of input DMX_IN2 are output as DMX
channels 257...512 in the combined output format.

DMX OUT   DMX OUT
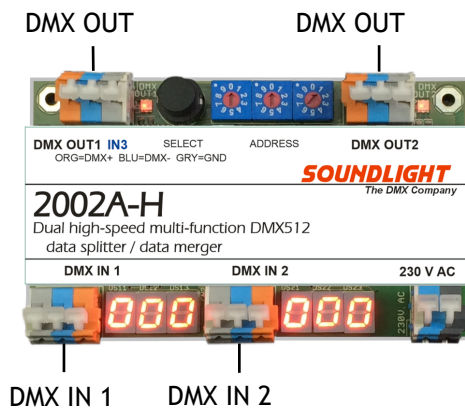
DMX IN 1   DMX IN 2

DMX IN 1: 1-256
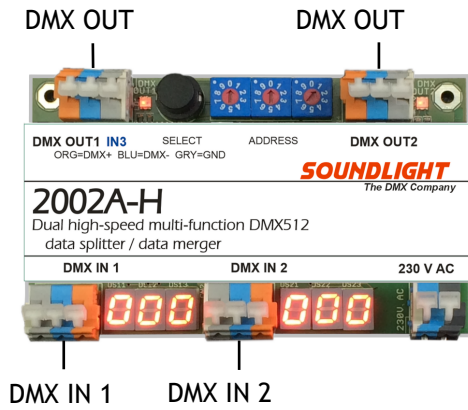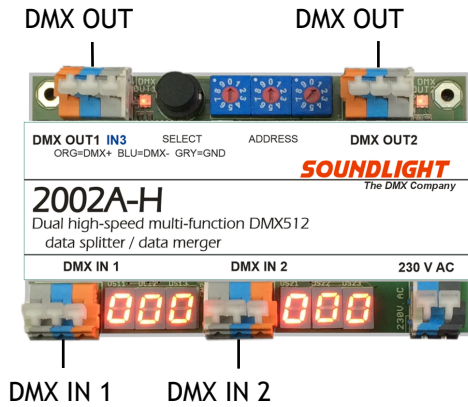DMX IN 2: belegt 257-512

MODE 5   FLIP

Flip - changeover: Only one of both DMX inputs will be fed to the outputs. The non-
active input is being signalled by blinking the display. Changeover occurs whenever
one of the input signals fails and then stays intact as long as the input signal is stab-
le and present. Nur einer der beiden DMX Eingänge wird auf die Ausgänge durchge-
schaltet.

DMX OUT   DMX OUT

DMX OUT1 **IN3**   SELECT   ADDRESS   **DMX OUT2**
ORG=DMX+ BLU=DMX- GRY=GND

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2002A-H
Dual high-speed multi-function DMX512
data splitter / data merger

DMX IN 1   **DMX IN 2**   **230 V AC**

DMX IN 1   DMX IN 2

MODE 6   **CHANGE**

Change - changeover: normally DMX_IN1 will be fed to the outputs. If this signal fails, input DMX_IN2 will be activated. The changeover action will be terminated as soon as DMX_IN1 will be available again, and DMX_IN1 will become active again.
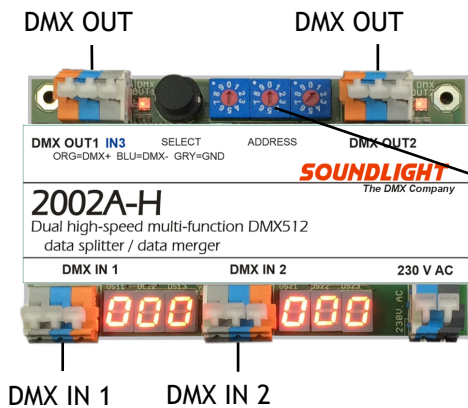

DMX OUT   DMX OUT

DMX OUT1 **IN3**   SELECT   ADDRESS   **DMX OUT2**
ORG=DMX+ BLU=DMX- GRY=GND

SOUNDLIGHT
The DMX Company

2002A-H
Dual high-speed multi-function DMX512
data splitter / data merger

DMX IN 1   **DMX IN 2**   **230 V AC**

DMX IN 1   DMX IN 2

Both outputs are in use, feeding the same signal.

MODE 7   **TRIG 1**

Trigger - release: This mode will feed input DMX_IN1 to both outputs. You can set the start adress to define a DMX channel, which will switch the input to DMX_IN2. A value of 251...255 is needed to initiate switching to DMX_IN2.
Use this function to allow a second controller feeding your equipment with DMX data temporarily.

DMX OUT   DMX OUT

DMX OUT1 **IN3**   SELECT   ADDRESS   DMX OUT2
ORG=DMX+ BLU=DMX- GRY=GND

SOUNDLIGHT
The DMX Company

2002A-H
Dual high-speed multi-function DMX512
data splitter / data merger

DMX IN 1   **DMX IN 2**   **230 V AC**

DMX IN 1   DMX IN 2

CONTROL INPUT ADRESS

Both outputs are in use, feeding the same signal.

MODE 8   TRIG 2

same as mode 7, but:
- the control channel is fixed to DMX_IN1, channel 512.
- control range is 251...255 to initiate changeover
- per default, DMX_IN2 is connected to the outputs
- the universe of DMX_IN2 is limited to the set start start adress (maximum address)
- the changeover command will switch all outputs to DMX_IN1
- the DMX universe of DMX_IN1 is not limited

Use this configuration to allow partial access to your equipment and to control changeover from your controller.
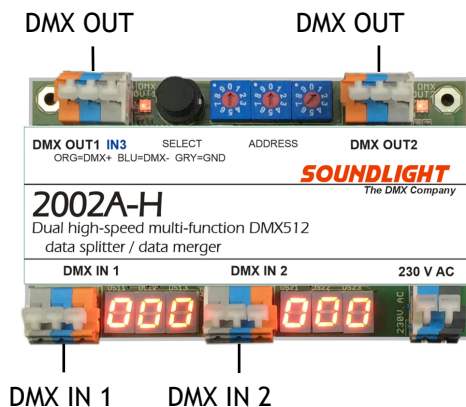
Both outputs are in use, feeding the same signal.
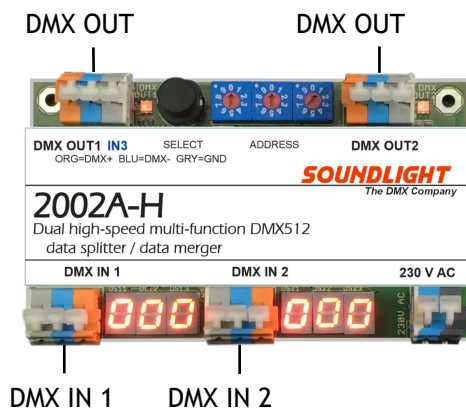
MODE 9   TRIG 3

Same as mode 7, but: Input #2 is used as control input.

MODE 10   MULTI-SPLIT

This mode will set the 2002A-H as signal splitter. You can set two split points. DMX_IN1 will be fed to DMX_OUT1 beginning with the first split address, DMX_IN1 will be fed to DMX_OUT2 beginning with the second split address. The second input (DMX_IN2) is not used. Both split addresses will be displayed.

To activate this mode and to set the split addresses, proceed as follows:
- press lkey repeatedly until "nulti" appears
- hold key and then set the second split address using the rotary switches
- release key and then set the first split address using the rotary switches

DMX OUT ab Adr 1 DMX OUT ab Adr 2

SPLIT ADDRESS SETTING
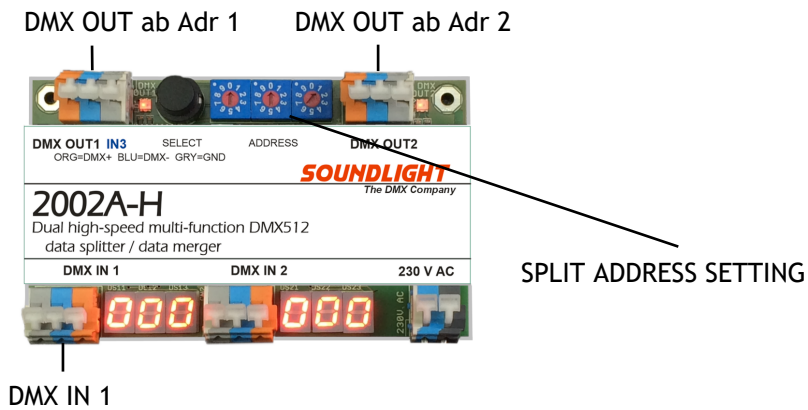
DMX IN 1

MODE 11 SCALE

The 2002A-H is working as digital master fader. The data stream input at DMX IN-PUT can be scaled using the data from DMX INPUT #2. Thus you can easily create a „Master Fader" for lighting control systems, which do not offer a grandmaster function.

DMX IN#1 is used as signal input, DMX IN#2 is used as master. Set a start address to define the address of the master fader signal.

There are to master fader functions available simultaneously.

Signal-Engine 1: Signal input: DMX_IN1
                  Signal output: DMX_OUT1
                  Master input: DMX_IN2, @ start address

Signal-Engine 2: Signal input: DMX_IN1
                  Signal output: DMX_OUT2
                  Master input: DMX_IN2, @start address+1

The displays are showing the master values in „%".

DMX OUT1 = DMX IN * MASTER 1
DMX OUT2 = DMX IN * MASTER 2

When the DMX MASTER input signal is not present, a master value of 100% will be assumed. Thus both displays will show „100 and the input signal will appear directly at the ouput terminals.


DMX OUT 1   DMX OUT 2

DMX IN   DMX MASTER
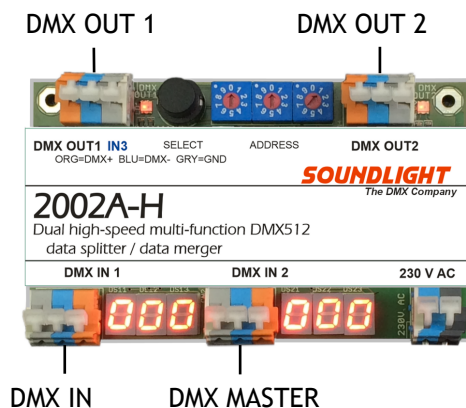
MODES using 3 DMX INPUTS and 1 DMX OUTPUT

These modes use the DMX OUT 1 port as additional signal input DMX IN 3, while the DMX OUT 2 terminals are used as output.

MODE 12   **HTP - 3in**

HTP (Highest takes Precedence, the highest value prevails) is the classical method to combine multiple DMX signals. Mode 12 combines three DMX inputs; all input data are compared and the highest level will be routed to the output.
Each DMX input accepts up to 512 DMX channels, the result is fed to to the output.

DMX IN 3 can additionally be combined with a start address. The input signal will then start at the start address set, and (512-start adress) data slots of DMX IN 3 will be used.
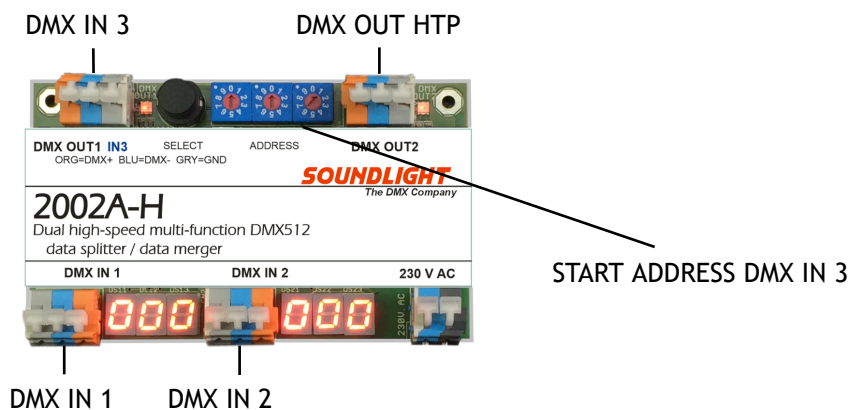
MODE 13   **HTP-APP**

HTP (Highest takes Precedence, the highest value prevails) is the classical method to combine multiple DMX signals. Mode 13 combines three DMX inputs: inputs DMX IN 1 an DMX IN 2 are HTP merged, while DMX IN 3 is appended from the set append address onward.
Each DMX input accepts up to 512 DMX channels, the result is fed to to the output.
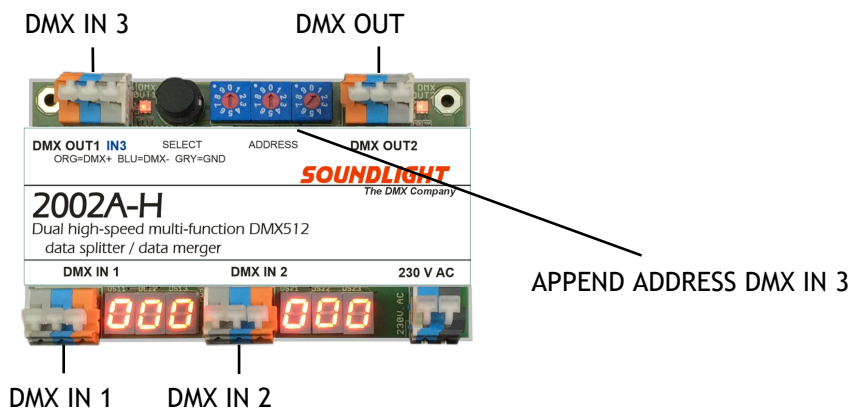
MODE 14   HTP-REP

HTP (Highest takes Precedence, the highest value prevails) is the classical method to combine multiple DMX signals. Mode 1 combines three DMX inputs: inputs DMX IN 1 an DMX IN 2 are HTP merged, while DMX IN 3 is used to replace the DMX data from the set replace address onward.

Each DMX input accepts up to 512 DMX channels, the result is fed to to the output.

Error Messages

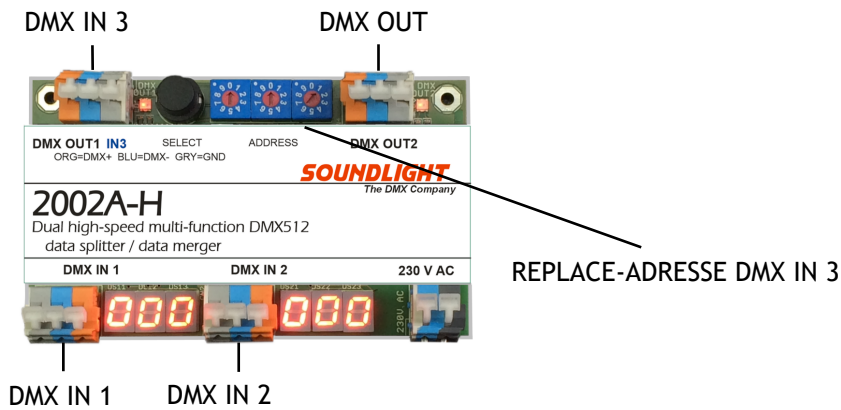Wrong settings may produce error messages. Typical error messages are:

Err 000   =   Start address 000 has been set. This is not a avild DMX start address.
Err 512   =   A start address greater than 512 has been set. The address is invalid.

Applications

The merger 2002A-H is suited for a wealth of applications. Typical applications include:

- combine two controllers: HTP Merging
- feed two controllers over one line: APPEND Mode
- transformDMX addresses: SPLIT Mode, Multi-Split
- precaution agains signal loss: CHANGE or TRIG1 Mode
- controlled signal switching: TRIG1 oder TRIG2 Modus
- signal regeneration: HTP, LTP, TRIG1, TRIG2, SPLIT

Displays

Output allocation, modes of operation or input values are shown on LED displays for both engines 1 and 2.

STATUS1, STATUS2: LED indicator red/green

When used is DMX INPUT:
      green: DMX Signal present
      red: blinks when DMX signal fails
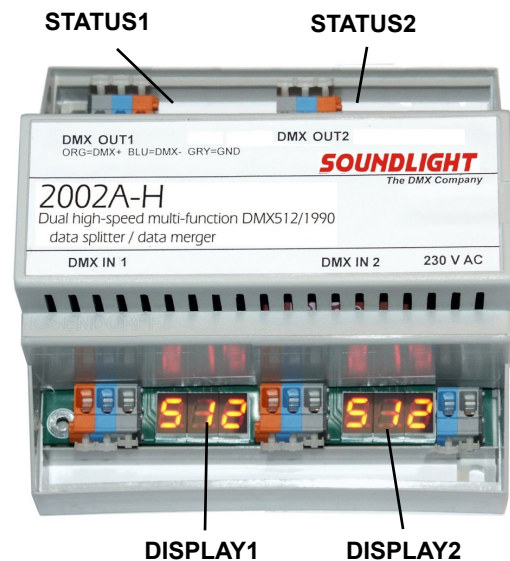
When used as DMX OUTPUT:
      green: DMX signal containing values >0
              present
      red: Output disabled

DISPLAY1, DISPLAY2

Normally shows the DMX signal slot count (mostly 512). In Mode 10 (Multi-Split) the split address will be shown. In Mode 11 (Scale) the master level (%) will be displayed.

Wrong settings may produce a Error Code (see above, chapter „Error Messages")

User Configuration

The DMX Merger 2002A-H can be configured to match special applications. Upon delivery, default settings are set.

To change a setting, please proceed as follows:
      - Disconnet the device from power
      - Set the rquired programming code using the start address switches
      - Re-power the merger; programming will take place during power-up
      - Re-set the stanmdard DMX start address (usually: 001)
      - Repeat for each setting

These are the parameters:
      HOLD MODE: At DMX data loss the last setting („last look") can be retained. The HOLD mode can be set for each input separately.

870	=	HOLD1 off (default)
871	=	HOLD1 on
872	=	HOLD2 off (default)
873	=	HOLD2 on
874	=	HOLD3 off (default)
875	=	HOLD3 on

      SLOW MODE: The output protocol will be „stretched" to reduce the amount of data transmitted. There are many devices (mainly of chinese origin) which do not comply with the full requirements of the DMX standard, which may cause flicker at high data rates. Setting the merger to „slow mode" may improve stability when using non-compliant DMX receivers.

```
876   =       SLOW off (default)
877   =       SLOW on
```

OUT MODE: The outputs will be turned off, when there is no valid DMX signal present at the DMX Inputs, and when no HOLD mode has been set. Setting the „OUT ON" option will enable the outputs continously; producing (empty) DMX outputv telegrams independent of input data presence.

```
878   =       OUT  off (default)
879   =       OUT  on

880   =       Re-Set all settings to default values
```

Technical Data

Dimensions:	114 mm [B] x 113 mm [T] x 66 mm [H]
Mounting:	DIN Rail 35mm
Power Supply:	230V AC approx. 2,5 VA
DMX IN:	2x 1 Unit Load each
Protocol:	USITT DMX512/1990, ANSI E1-11 DMX512-A, DIN56930-2
DMX OUT:	2x je 32 Unit Load, gepuffert
Modes of operation:	HTP, LTP, SPLIT, APPEND, FLIP, CHANGEOVER, TRIGGER, etc.
Storage temperature:	-10...+70°C
Operating temperature:	0...+50°C
Safety rating:	IP20
Order Code.:	2002A-H

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 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 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 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 DMX merger 2002A-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. Updated and foreign language manuals are available from www.manuals.soundlight.de. 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.

Product Homepage

Fid all product data and product news on te product homepage:

www.soundlight.de/produkte/2002a-h