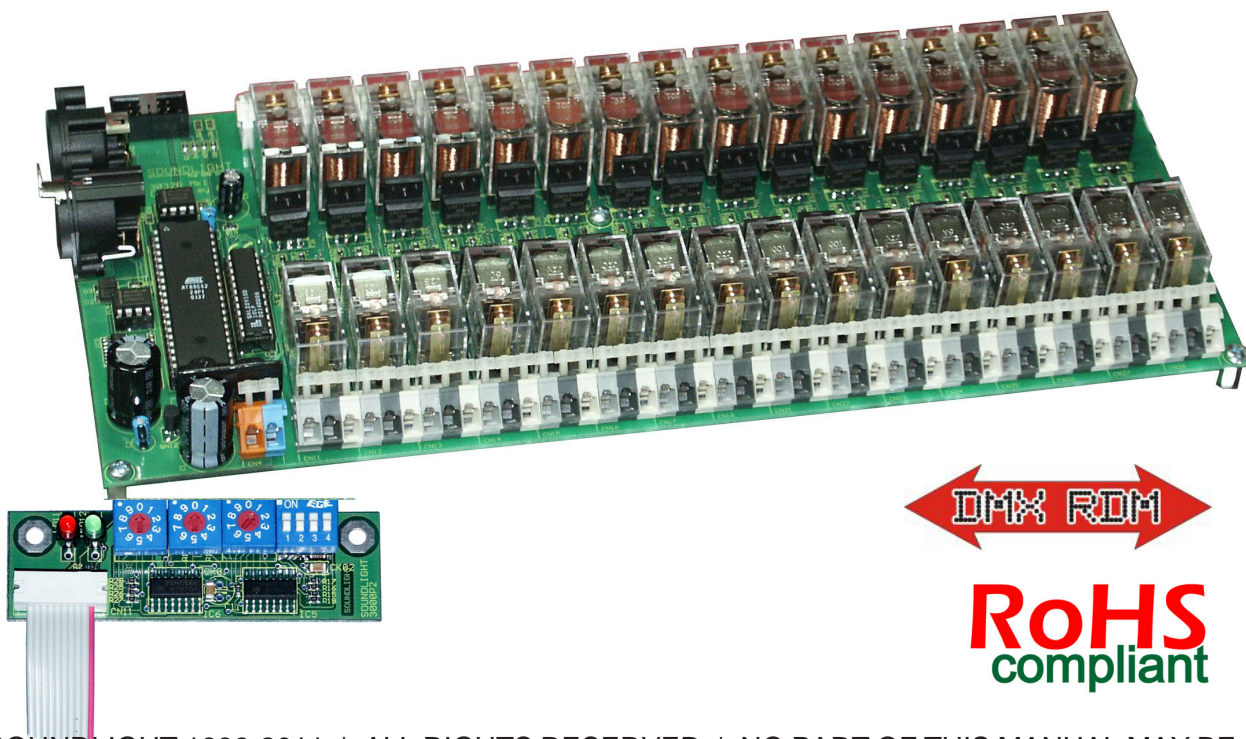


OPERATING MANUAL

DMX Relay Card 3232R - EP RDM Mk1.1



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PREFACE

Thank you for choosing a SOUNDLIGHT device.

The SOUNDLIGHT DMX Relay Card 3202R is an intelligent DMX demultiplexer decoding digital data complying with standards USITT DMX512 and DIN 56930-2. The card drive two contact relay outputs. The card 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 and can easily be adapted to any change in protocol definition.
- **integrated hysteresis**
Adjustable hysteresis ensures flicker free switching
- **simple supply**
The power supply is from standard regulated DC 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 3232R is a cost-effective solution for many purposes.

FEATURES

The relay card 3232R consists of a base printed circuit board and a detachable DMX start address setting board. The relay card can be operated with or without start address board at your option; see below for programming and address setting options. This card is intended for use in lighting effects and as fast-switching relay card; for limitations see "Additional Notes" on page 7. The 3232R-EP replaces the 3032R-EP, which is no longer available.

NOMENCLATURE

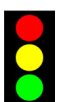
These symbols are used within this manual:



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 card has

been in good condition. In case of damage during transport please notify the carrier immediately.

When unpacking, you should identify these items:

- * the interface card 3202R complete with address board 3000P
- * this manual

INSTALLATION

Please mount the card in a closed, screened case. The card features fastening holes for tapped screws M3. We recommend use of brass distance bolts or spacers to mount the card 10mm above the case base plate. Connect the power supply to PSU leads or the PSU screw terminals.

The power supply connector leads are:

- red: +24V DC stabilized (at your option, use the supplied 230V AC power supply)
- blue: 0V, GND

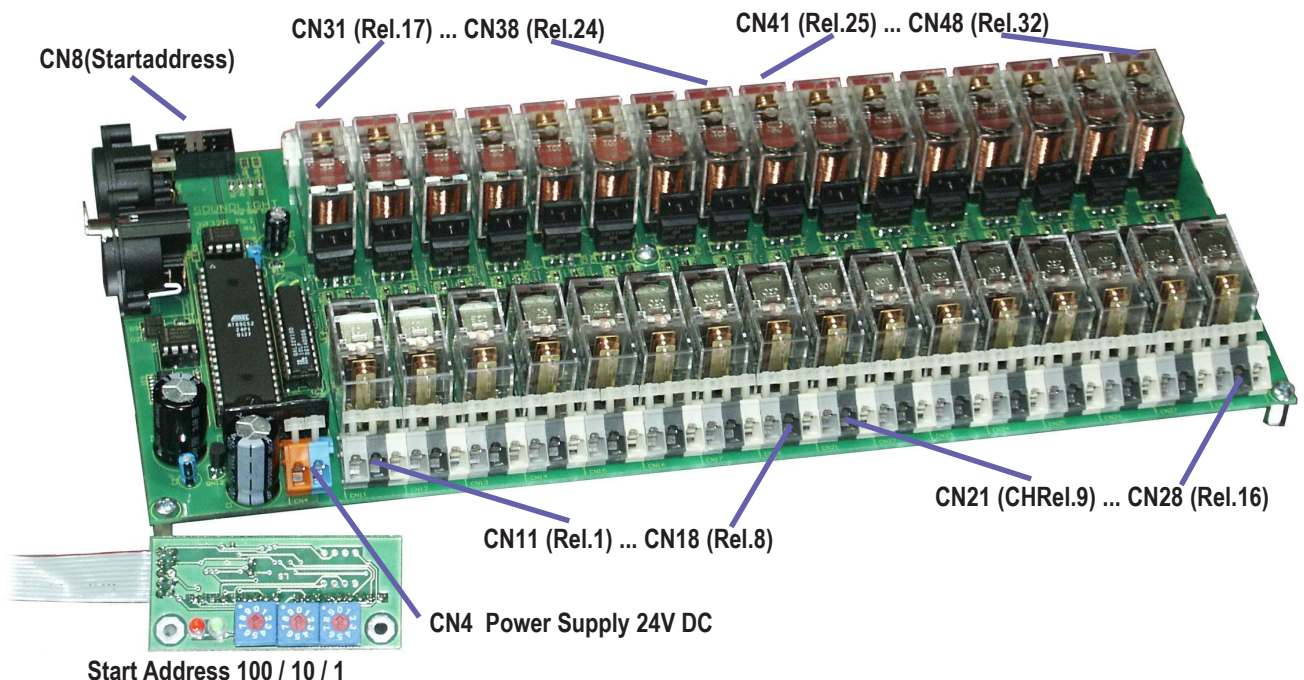
Upon application of supply voltage the card is ready for operation.

ATTENTION! Reversing the PSU leads may damage the unit!



DMX INPUT / OUTPUT

Connection to the DMX512 data line is by 5-pin onboard XLR connectors, as defined in the DMX512/1990, DIN56930 or ANSI E1-11 and ANSI E1-20 standards document. For pin assignment see below.



DMX INPUT (male)

- 1 GND
- 2 DMX -
- 3 DMX +
- 4 not connected, thru-wired to Pin 4 DMX OUT
- 5 not connected, thru-wired to Pin 5 DMX OUT

DMX OUTPUT (female)

1	GND
2	DMX -
3	DMX +
4	not connected, thru-wired to Pin 4 DMX IN
5	not connected, thru-wired to Pin 5 DMX IN

CN11 Relay output 1
CN12... Relay output 2 etc. until
CN18 Relay output 8

CN21... Relay output 9 etc. until
CN28 Relay output 16

CN31... Relay output 17 etc. until
CN38 Relay output 24

CN41... Relay output 25 etc. until
CN48 Relay output 32

white	C (Common)
light grey	NC (Normally Closed)
dark grey	NO (Normally Open)

NOTE: terminal assignment may change due to type of relays fitted. Please verify contact assignment using a ohmmeter before wiring the terminals.

CN4 Power supply 24V DC

red	+24V DC approx. 650mA
blue	0.0V, GND

SIGNAL INDICATORS

The state of the demultiplexer card is signalled with two indicator LEDs.



green: OPERATION (blinking)
 red: ERROR (blinking)
 Error blinking at data errors or loss of communication.

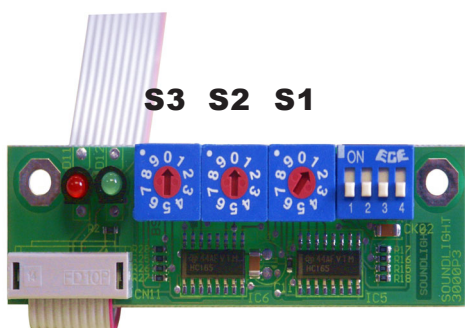
START ADDRESS SWITCHES

The three decimal coding switches set the start address, that is the address of the first channel to be decoded. The setting is fully decimal, no binary conversion is necessary as is with DIL switches.



S1: Ones
 S2: Tens
 S3: Hundreds

If the switch block is set to address 000, all outputs are disabled regardless of the data received.



Start address setting with RDM::

Please note that the start address switches get locked as soon as settings have been changed using DMX RDM. This prevents the decoder from reading start address switch data again. To unlock the switches, set the hundreds position to "9" temporarily. This will unlock the switches.

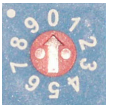
DIP SWITCH SETTINGS

The relay card 3232R may be configured to match different applications. Set the DIP-switches 1...4 on the DMX start address selector board to achieve the desired mode of operation. Settings will be retained in nonvolatile memory if the address board is removed after.

SWITCH1: HOLD Mode

With HOLD mode ON, the last valid DMX data will be retained at signal loss. Otherwise, all outputs will be set according to S2 setting (below).

OFF HOLD mode off
ON HOLD mode on



SWITCH2: Safety Level

With HOLD mode OFF, the outputs will be set:

OFF all outputs set to OFF
ON all outputs set to ON

SWITCH 3, 4 Hysteresis default: off/off = trip point 50%/51%

The switch setting defines the behaviour of the relay card. These settings are available:

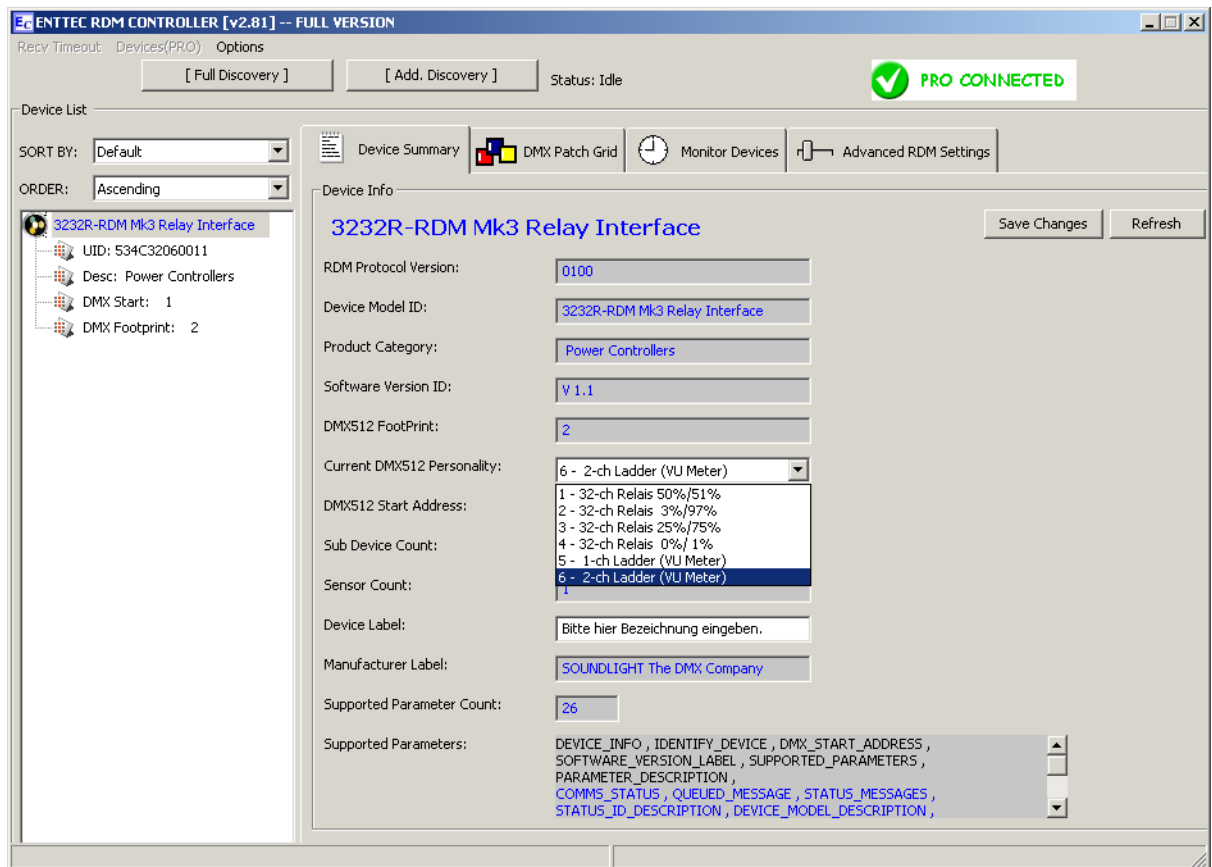
Switch	3	4	TRIP POINT
	OFF	OFF	50% / 51% (DMX PERSONALITY 1)
	ON	OFF	25% / 75% (DMX PERSONALITY 2)
	OFF	ON	6% / 94% (DMX PERSONALITY 3)
	ON	ON	0% / 1% (DMX PERSONALITY 4)

DMX RDM PROPERTIES

The DMX relay card 3232R-EP RDM complies with RDM standard ANSI E1-20 1.0. The device is recognized as power controller and can be configured to six operating modes:

- PERSONALITY 1: 32-channel relay card with trip points 50%/51%
- PERSONALITY 2: 32-channel relay card with trip points 25%/75%
- PERSONALITY 3: 32-channel relay card with trip points 6%/94%
- PERSONALITY 4: 32-channel relay card with trip points 0%/1%
- PERSONALITY 5: 1-channel relay card with VU-meter output on 32 relays
- PERSONALITY 6: 2-channel relay card with VU-meter output on 2x 16 relays

Select the appropriate DMX personality to activate the desired mode of operation.



Special functions available with the 3232R-EP relay card include:

RESET DEVICE

Used to reset the unit. A "cold" reset or a "warm" reset are available. The "cold" reset will increase the DEVICE POWER CYCLES counter.

Function: SET
 Parameters: 01 (\$01) generates a warm reset
 255 (\$FF) generates a cold reset

DEVICE POWER CYCLES

reads the number of device power-ups. Cannot be reset.

Function: GET
 Parameters: none
 Return data: 1 word (0-65535, \$0000-\$FFFF)

DMX HOLD MODE

sets the behaviour at loss of data signal and reflects the state of DIP switches 1 and 2 (or settings S1, S2, respectively - see above).

Function: GET / SET
 Parameters: 1 Byte (0-2) 0=non-hold, all outputs OFF
 1=non-hold, all outputs ON
 2=DMX HOLD (last valid value retained)

IDENTIFY MODE

Selects "loud" (signalling on outputs) or "quiet" mode (signalling on indicator LEDs)

FUNCTION: GET / SET
 Parameters: GET: nothing, returns 1 Byte (Identify Mode)
 SET: 1 Byte (Identify Mode)
 \$00= quiet mode, \$FF=loud mode

DMX FAIL MODE

Selects the behaviour at loss of data. This function is similar to DMX HOLD MODE (see above) but has a different parameter set to match future standard E1-37.

FUNCTION: GET / SET
Parameters: GET: nothing, returns 7 bytes
SET: 7 bytes

DMX HOLD

0: goto OFF
1: goto ON
2: keep last

DMX FAIL MODE

\$00 \$00 \$00 \$00 \$FF \$FF \$00
\$00 \$00 \$00 \$00 \$FF \$FF \$FF
\$00 \$00 \$FF \$FF \$FF \$FF \$FF

PIN SETTING

Allows to define a PIN code to lock various functions. This parameter is used to get and set the PIN code for devices that support locking. The lock state is set using the LOCK_STATE message.

FUNCTION: SET
Parameters: 2 words (4 bytes): <current PIN> <new PIN>
A PIN can be any value between 0000(dec) and 9999(dec), that is, \$0000 and \$270F. The default PIN is 0000. Please keep the PIN in a safe place, since there is no way to retrieve a lost PIN.
Example: Set the PIN to 1234(dec)
Enter: 000004D2 since 1234(dec) = 04D2(hex)

LOCK STATE

This parameter is used to determine the lock state for devices that support locking. A lock, when applied, can have a variable level of what is protected against in the device. The locking mechanism is designed to deter tampering and is not intended to provide absolute security.

With the 4704A-EP, there are two different lock states available.

FUNCTION: GET / SET
Parameters: GET: none,
returns 2 Bytes: <current lock state><# of lock states>
SET: 3 bytes: <PIN> <desired lock state>
LOCK STATES: 0= no lock state active
1= lock configuration
2= lock setup
3= lock both

Configuration lock includes:

- SET DMX PERSONALITY
- SET DMX FAIL MODE
- SET DMX HOLD

Setup lock includes:

- SET RDM SLOT LABELS
- SET SENSOR DEFINITION
- SET OUTPUT CONFIGURATION
- SET DMX FOOTPRINT

Example: using the PIN defined above, set the lock state to "lock setup". Enter data: 04 D2 02

LOCK STATE DESCRIPTION

Returns a description for the requested lock state.

FUNCTION: GET

Parameters: GET: 1 byte (no. of lock state requested)

returns: 1-33 bytes <# lock state> <text: 0..32 bytes>

SPECIAL FUNCTIONS

A VU meter mode (sequentially switched relays) is available as special function. This can be called from DMX RDM as DMX PERSONALITY 5 or 6 (see above). To call these functions without using DMX RDM, please proceed as follows:

1. Remove power
2. Set the specified address as DMX start address.
3. Apply power, programming takes place (LEDs blink several times to indicate activity).
4. Set the standard DMX start address again.

Use these special virtual addresses to set the special functions:

880= Re-initiate PERSONALITY 1..4

(DIP-switches 3,4 define DMX personalities 1...4)

881= Select VU-Meter Mode1

This is a 32-fold VU-meter mode responding to DMX channel #1. Depending on level applied, first relay 1, then relay 2, then relay 3 etc. will be closed.
dann Relais 2, dann die folgenden eingeschaltet.

882= Select VU-Meter Mode 2

This is two 16-fold VU-meter modes responding to DMX channels #1 and #2. Depending on level applied, first relay 1 (17), then relay 2 (18), then relay 3 (19) etc. will be closed.

TECHNICAL DATA

Dimensions: 300 mm x 145 mm x 40 mm

Power supply: 24V DC <30 mA (no relay)
650 mA (all relays)

DMX IN: 1 Unit Load

DMX OUT: fed-thru

Relay Out: max. 250V AC, max. 10A (resistive load)
(refer to relay manufacturer data sheet for non-resistive loads or DC)

BestellNr.: 3232R-EP

DISTURBANCES

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

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.

CE MARKING



The unit has been tested in our lab and has been marked to comply with CE requirements. To ensure compliance, use grounded power leads only and make sure that properly shielded data lines (CAT5, DMX data cable or Digital Audio cable to AES/EBU specifications) are used. Any modifications not approved by the manufacturer may void CE compliance.

LIMITED WARRANTY

This instrument 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 decoder 3232R-EP 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.