

# DMX-RELAIS 8 INRUSH+

## User manual





For your own safety, please read this user manual and warnings carefully before installation.

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## Description

The **DMX-RELAIS 8 INRUSH+** is designed for several control tasks.

### **8 potential free switching outputs**

The DMX-RELAIS 8 INRUSH+ has 8 potential free switching outputs (Closer / NO) up to 8A switching capacity.

### **Switching contact for direct and alternating voltage**

The relay interface is suitable to direct current (DC) or alternating current (AC).

### **DMX FAIL-Function**

An adjustable DMX FAIL function offers the option to hold the current state (HOLD) or to adopt a predefined value if the DMX signal fails.

### **RDM support**

The DMX-RELAIS 8 INRUSH allows the configuration via RDM or DMX.

### **Free RDM software**

For setting the parameters via RDM, our free RDM Configurator software is available for download on our website [www.dmx4all.de](http://www.dmx4all.de).

### **Lockable device settings**

The RDM parameters Lock Pin and Lock State allow or prohibit changing saved RDM parameters to prevent unauthorized changes.

### **SubDevice-Mode**

In SubDevice mode, each output is assigned its own DMX address, operating mode and DMX FAIL behavior via RDM.

### **Touch-Control**

The DMX-RELAIS 8 INRUSH+ is designed with 3 touch fields for operation and a 7-segment display.

### **RGB-Status display**

Via a RGB status display the DMX reception is shown.

### **Mute able LED-Display**

The LED-Display at the DMX-RELAIS 8 INRUSH+ can be switched off via RDM command or time-controlled, so that no disturbing light sources are present during operation.

### **Several operation modes**

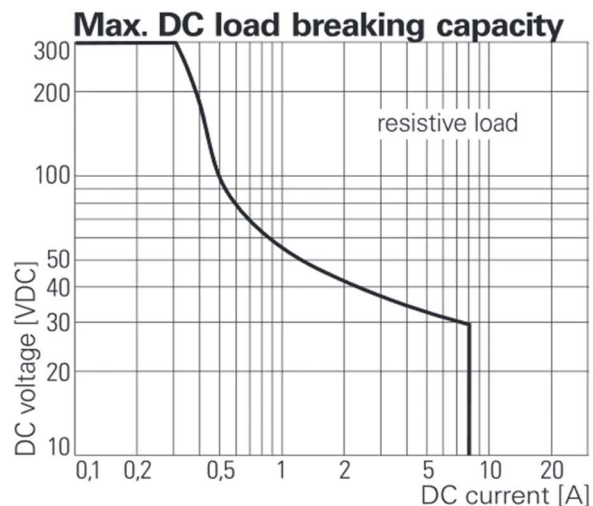
The DMX-RELAIS 8 INRUSH+ offers various operation modes.

## Technical Data

<b>Power supply:</b>	12-24V DC (300mA @ 12V / 200mA @ 24V)
<b>Protocol:</b>	DMX512 RDM
<b>DMX-Channels:</b>	up to 8 DMX channels
<b>DMX-FAIL:</b>	HOLD / 0-100%
<b>Operation modes:</b>	Hysteresis 127/128 Hysteresis 0/1 Hysteresis 100/150 Exclusive Monostable 1Second
<b>Output:</b>	8 potential-free switching output (closer / NO) 165A@20ms peak switch-on current AC: each max. 8A / 250V~ DC: According to the max. DC load graph
<b>Display:</b>	7 segment display RGB LED
<b>TOUCH-Control:</b>	3 touch buttons
<b>Connections:</b>	Screw terminals
<b>Dimensions:</b>	105mm x 90mm x 60mm

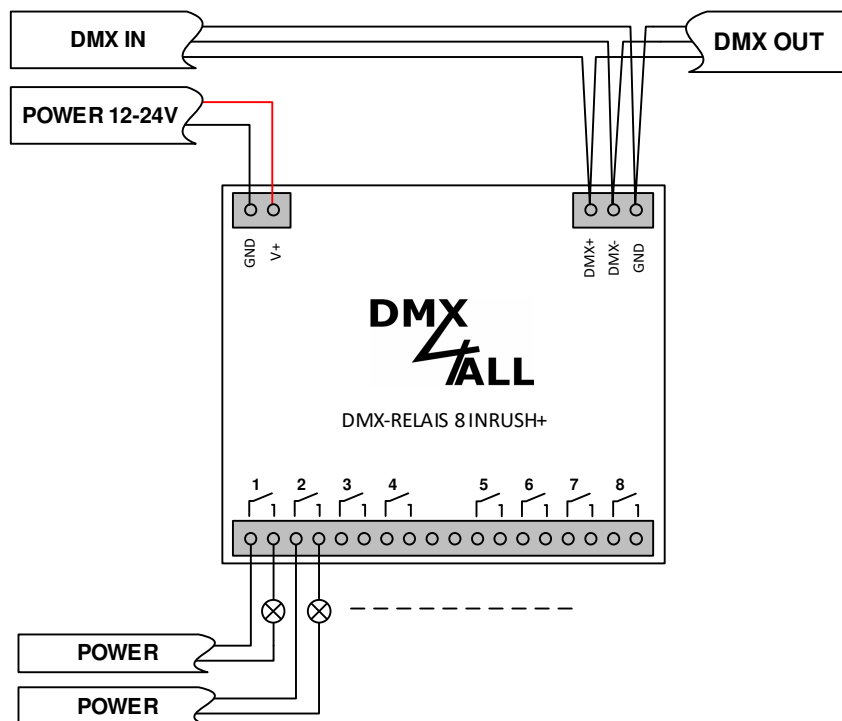
## Max. DC load

The maximum current the switch contacts of the **DMX RELAIS 8 INRUSH** can switch, is shown in the following graph depending on the switching voltage:



(Source: Data sheet RTS3T012)

## Connection



**Switch contact**

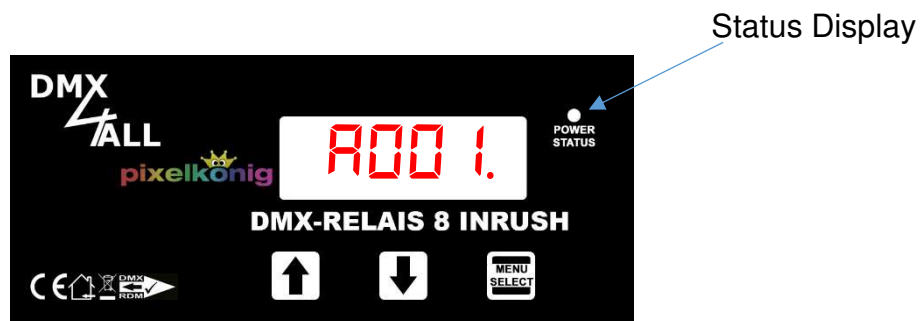
AC: each max. 8A / 250V~

DC: According to the max. DC load graph

(165A@20ms peak switch-on current)

## Status Display

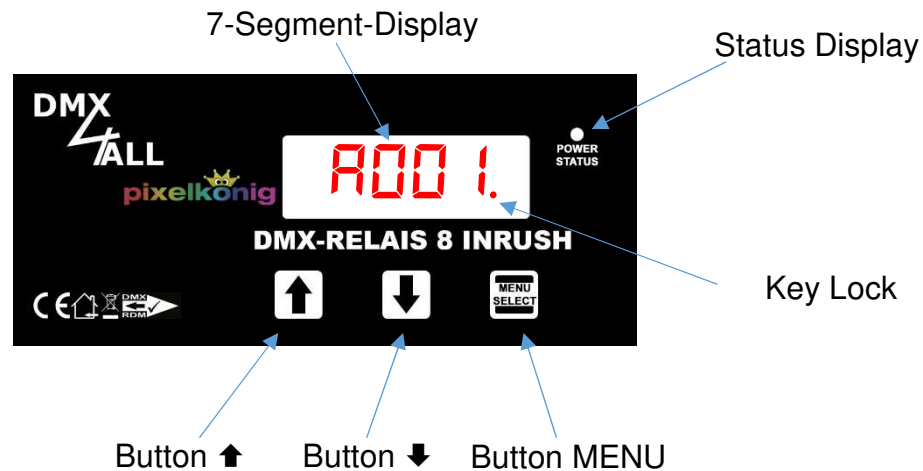
The integrated RGB status display is a multifunction display.



Off	Power supply not connected / Display is switched off
RED flashes	No DMX signal detected
GREEN	Device ready for use
GREEN flashes	Device shows RDM identify

## Settings

Either the settings can be made via RDM or directly at the DMX-RELAIS 8 INRUSH+ via the 3 buttons at the 7 segment display.



## Key Lock

After turning on the DMX-RELAIS 8 INRUSH+ or if no button is pressed for ca. 15 seconds the key lock starts automatically and the set DMX start address is showed.

The activated key lock is displayed via a lighting dot right below in the display.

To release the key lock, any key must be pressed for ca. 3 seconds. During this time, the key lock indicator flashes until it finally goes out.

## Menu Guide

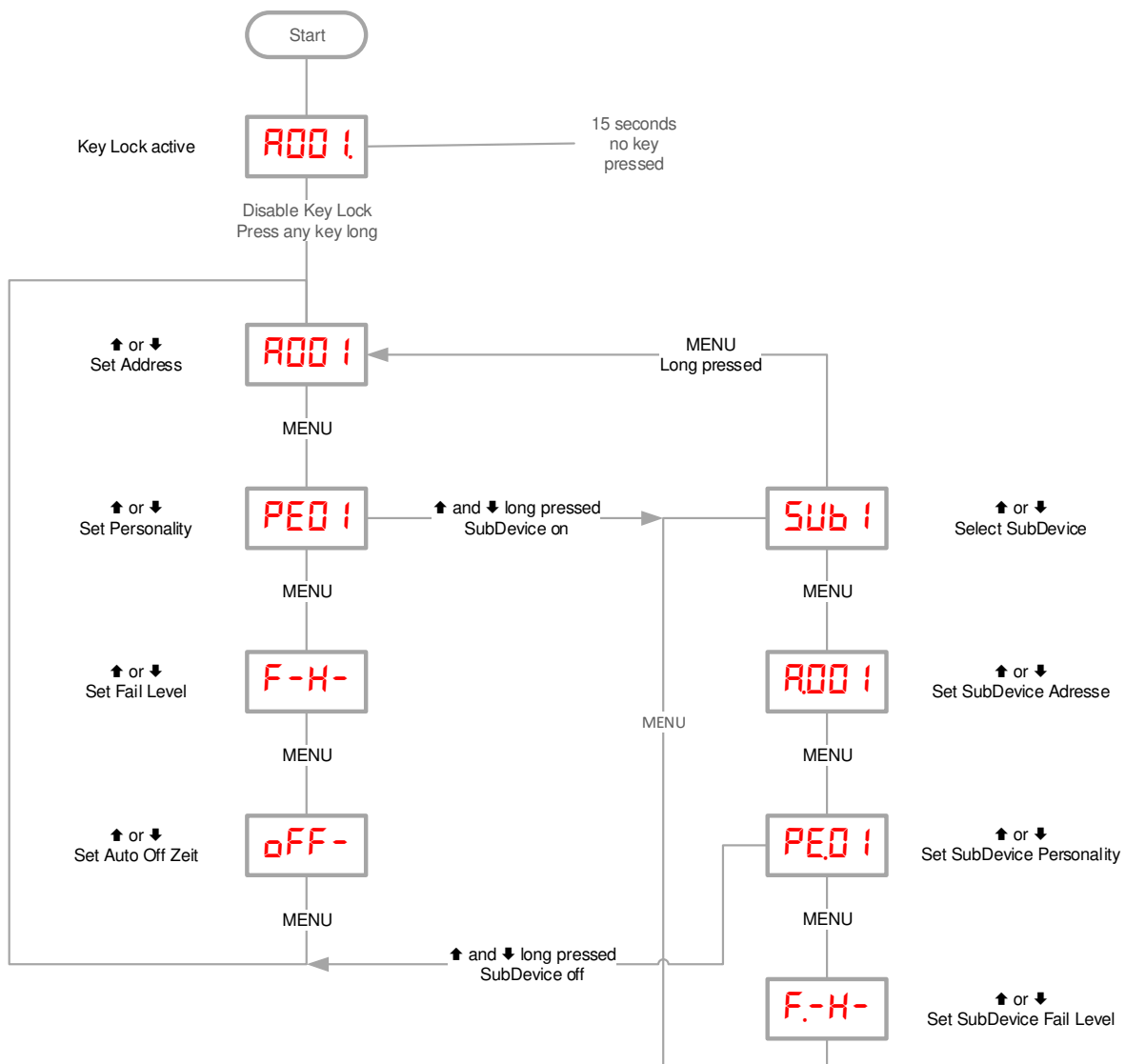
Various menu items are shown via the display, which can then be set using the buttons **↑** or **↓**.

The menu item is displayed with a letter abbreviation followed by the set value.

The letter abbreviations are assigned as follows:

- R** DMX-Start address
- PE** Personality
- F** Fail-Mode
- oFF** AutoOff Time

The menu navigation is shown as follows:





## DMX-Address

Via the RDM parameter DMX\_START\_ADDRESS or directly at the device under menu  $\bar{R}$  the start address can be set.

By pressing the buttons  $\uparrow$  or  $\downarrow$  the start address can be set in a arrange of 1 and 512.

If  $\uparrow$  or  $\downarrow$  is pressed held, the start address increases or decreases until the button is pressed.



## Display Switch Off

To avoid disturbing lighting points during the operation, the DMX-RELAIS 8 INRUSH+ display can be switched off.

The shutdown can occur manually or automatically.

Manually it takes place via the RDM parameter DISPLAY\_LEVEL.

To activate the automatic shutdown the RDM parameter DISPLAY\_AUTO\_OFF is to select or the menu  $\square FF$  directly at the device.

The time, after which the shutdown should take place is to select between 1 and 9 minutes or off (-) by pressing the buttons  $\uparrow$  or  $\downarrow$ .



The display shutdown is only in the normal operation (permanent applied DMX-Signal) possible after the set time runs out. If the DMX-Signal gets lost or a button is pressed at the device the display is switched on and the passed time is reset.

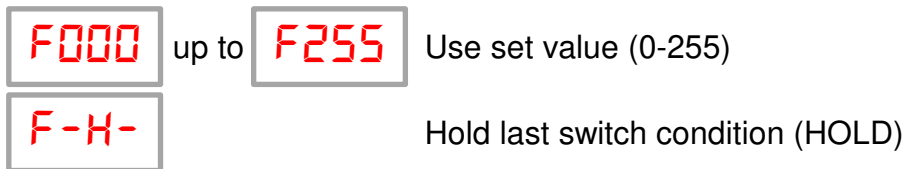
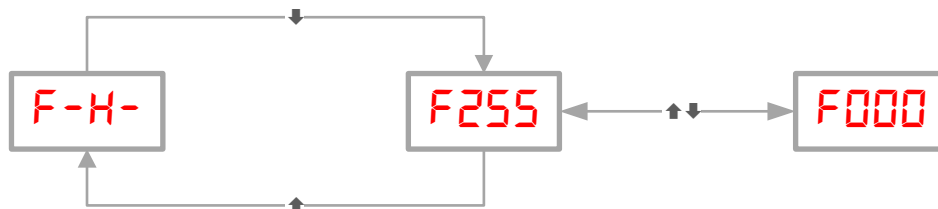
## DMX-Fail Behavior


The **DMX-RELAIS 8 INRUSH+** has a DMX-FAIL function keeping the last switching state (HOLD) or set the predefined switching state to the set value.

In case of DMX fail the behavior can be set via the RDM parameter DMX\_FAIL\_MODE or directly at the device in the menu F .

Using the buttons  $\uparrow$  or  $\downarrow$  the value is set in a range of 0 and 255. If  $\uparrow$  or  $\downarrow$  is pressed held, the value increases or decreases automatically until the button is pressed.

If the maximum value of 255 is reached, the hold function is activated by pressing  $\uparrow$  again. Pressing  $\downarrow$  again the hold function is deactivated again.



 In case of a power fail the hold switching states are not restored with the hold function. In this case the switching states are set OFF.

## Operation Modes

The **DMX-RELAIS 8 INRUSH+** has several operation modes (Personality).

- Personality 1: Hysteresis 127/128
- Personality 2: Hysteresis 0/1
- Personality 3: Hysteresis 100/150
- Personality 4: Exclusive (Jalousie-Control)
- Personality 5: Monostable 1Second (Impulse)

The number of the needed DMX channels and their assignment as well as the way of controlling the outputs depends on the Personality.

The Personality is to choose via the RDM parameter DMX\_PERSONALITY or at the device in the menu PE.

By pressing the buttons **▲** or **▼** the Personality is set between 1 and 19.



The DMX address assignment is described on the following pages.

***Personality 1: Hysteresis 127/128***

In this operation mode, the relays switch of each other independently, each via one DMX channel.

The switching threshold (Hysteresis) is 127/128. That means that the relay is switched off when the DMX value is 127 or less and that the relay is switched on when the DMX value is 128 or greater.

DMX Channel	DMX Value	Function
1	0-127	Output 1 OFF
	128-255	Output 1 ON
2	0-127	Output 2 OFF
	128-255	Output 2 ON
3	0-127	Output 3 OFF
	128-255	Output 3 ON
4	0-127	Output 4 OFF
	128-255	Output 4 ON
5	0-127	Output 5 OFF
	128-255	Output 5 ON
6	0-127	Output 6 OFF
	128-255	Output 6 ON
7	0-127	Output 7 OFF
	128-255	Output 7 ON
8	0-127	Output 8 OFF
	128-255	Output 8 ON

For this operation mode choose via RDM the Personality 1.

***Personality 2: Hysteresis 0/1***

In this operation mode, the relays switch of each other independently, each via one DMX channel.

The switching threshold (Hysteresis) is 0/1. That means that the relay is switched off when the DMX value is 0 and that the relay is switched on when the DMX value is 1 or greater.

DMX Channel	DMX Value	Function
1	0	Output 1 OFF
	1-255	Output 1 ON
2	0	Output 2 OFF
	1-255	Output 2 ON
3	0	Output 3 OFF
	1-255	Output 3 ON
4	0	Output 4 OFF
	1-255	Output 4 ON
5	0	Output 5 OFF
	1-255	Output 5 ON
6	0	Output 6 OFF
	1-255	Output 6 ON
7	0	Output 7 OFF
	1-255	Output 7 ON
8	0	Output 8 OFF
	1-255	Output 8 ON

For this operation mode choose via RDM the Personality 2.

**Personality 3: Hysteresis 100/150**

In this operation mode, the relays switch of each other independently, each via one DMX channel.

The switching threshold (Hysteresis) is 100/150. That means that the relay is switched off when the DMX value is 100 or less and that the relay is switched on when the DMX value is 150 or greater.

DMX Channel	DMX Value	Function
1	0-100	Output 1 OFF
	101-149	Output 1 NO ACTION
	150-255	Output 1 ON
2	0-100	Output 2 OFF
	101-149	Output 2 NO ACTION
	150-255	Output 2 ON
3	0-100	Output 3 OFF
	101-149	Output 3 NO ACTION
	150-255	Output 3 ON
4	0-100	Output 4 OFF
	101-149	Output 4 NO ACTION
	150-255	Output 4 ON
5	0-100	Output 5 OFF
	101-149	Output 5 NO ACTION
	150-255	Output 5 ON
6	0-100	Output 6 OFF
	101-149	Output 6 NO ACTION
	150-255	Output 6 ON
7	0-100	Output 7 OFF
	101-149	Output 7 NO ACTION
	150-255	Output 7 ON
8	0-100	Output 8 OFF
	101-149	Output 8 NO ACTION
	150-255	Output 8 ON

For this operation mode choose via RDM the Personality 3.

**Personality 4: Exclusive**

In this operation mode, 2 relays are linked to one another, so only one relay can switch at a time.

The switching threshold (hysteresis) is 127/128, which means that the relay is switched off when the DMX value is 127 or less. The relay is switched on when the DMX value is 128 or greater.

However, two linked relays (1 + 2/3 + 4/5 + 6/7 + 8) cannot be switched on at the same time.

DMX Channel	DMX Value	Function
1	0-127	Output 1 OFF
	128-255	Output 1 ON, if output 2 OFF
2	0-127	Output 2 OFF
	128-255	Output 2 ON, if output 1 OFF
3	0-127	Output 3 OFF
	128-255	Output 3 ON, if output 2 OFF
4	0-127	Output 4 OFF
	128-255	Output 4 ON, if output 3 OFF
5	0-127	Output 5 OFF
	128-255	Output 5 ON, if output 4 OFF
6	0-127	Output 6 OFF
	128-255	Output 6 ON, if output 5 OFF
7	0-127	Output 7 OFF
	128-255	Output 7 ON, if output 6 OFF
8	0-127	Output 8 OFF
	128-255	Output 8 ON, if output 7 OFF

For this operation mode choose via RDM the Personality 4.

***Personality 5: Monostable 1Second (Impulse)***

In this operation mode, the relays switch of each other independently, each via one DMX channel.

As soon as the DMX value is 128 or greater, the relay switches for 1 second. After that, the DMX value must first drop below 128 in order to trigger another switching pulse.

DMX Channel	DMX Value	Function
1	0-127	Output 1 OFF
	128-255	Output 1 1x 1-second ON
2	0-127	Output 2 OFF
	128-255	Output 2 1x 1- second ON
3	0-127	Output 3 OFF
	128-255	Output 3 1x 1- second ON
4	0-127	Output 4 OFF
	128-255	Output 4 1x 1- second ON
5	0-127	Output 5 OFF
	128-255	Output 5 1x 1- second ON
6	0-127	Output 6 OFF
	128-255	Output 6 1x 1- second ON
7	0-127	Output 7 OFF
	128-255	Output 7 1x 1- second ON
8	0-127	Output 8 OFF
	128-255	Output 8 1x 1- second ON

For this operation mode choose via RDM the Personality 5.



## RDM

RDM is the short form for **R**emote **D**evice **M**anagement.

As soon as the device is within the system, device-dependent settings can occur remotely via RDM command due to the uniquely assigned UID. A direct access to the device is not necessary.

This device supports the following RDM commands:

Parameter ID	Discovery Command	SET Command	GET Command	ANSI/PID
DISC_UNIQUE_BRANCH	✓			E1.20
DISC_MUTE	✓			E1.20
DISC_UN_MUTE	✓			E1.20
DEVICE_INFO			✓	E1.20
SUPPORTED_PARAMETERS			✓	E1.20
PARAMETER_DESCRIPTION			✓	E1.20
SOFTWARE_VERSION_LABEL			✓	E1.20
DMX_START_ADDRESS		✓	✓	E1.20
DEVICE_LABEL		✓	✓	E1.20
MANUFACTURER_LABEL			✓	E1.20
DEVICE_MODEL_DESCRIPTION			✓	E1.20
IDENTIFY_DEVICE		✓	✓	E1.20
FACTORY_DEFAULTS		✓	✓	E1.20
DMX_PERSONALITY		✓	✓	E1.20
DMX_PERSONALITY_DESCRIPTION			✓	E1.20
DMX_FAIL_MODE		✓	✓	E1.37
LOCK_STATE		✓	✓	E1.37
LOCK_STATE_DESCRIPTION			✓	E1.37
LOCK_PIN		✓		E1.37

Parameter ID	Discovery Command	SET Command	GET Command	ANSI/PID
SERIAL_NUMBER <sup>1)</sup>			✓	PID: 0xD400
DISPLAY_AUTO_OFF <sup>1)</sup>		✓	✓	PID: 0xD401
IDENTIFY_MODE <sup>1)</sup>		✓	✓	PID: 0xD402
SUBDEVICE_ENABLE <sup>1)</sup>		✓	✓	PID: 0xFF0F

1) Manufacturer depending RDM control commands (MSC - Manufacturer Specific Type)

Manufacturer depending RDM control commands:

### SERIAL\_NUMBER

PID: 0xD400

Outputs a text description (ASCII-Text) of the device serial number.

GET    Send:    PDL=0  
        Receive: PDL=21    (21 Byte ASCII-Text)

### DISPLAY\_AUTO\_OFF

PID: 0xD401

Sets the time after which the display is switched off (DISPLAY\_LEVEL = 0).

Valid values are:

- 0        - NO AUTO OFF
- 600     - 1 minute
- 1200    - 2 minutes
- 1800    - 3 minutes
- 2400    - 4 minutes
- 3000    - 5 minutes
- 3600    - 6 minutes
- 4200    - 7 minutes
- 4800    - 8 minutes
- 5400    - 9 minutes

GET    Send:    PDL=0  
        Receive: PDL=2    (1 Word)

SET    Send:    PDL=2    (1 Word)  
        Receive: PDL=0

## IDENTIFY\_MODE

PID: 0xD402

Sets the mode that is executed with IDENTIFY\_DEVICE.

GET    Send:    PDL=0  
       Receive: PDL=1    (1 Byte IDENTIFY\_MODE\_ID)

SET    Send:    PDL=1    (1 Byte IDENTIFY\_MODE\_ID)  
       Receive: PDL=0

IDENTIFY_MODE_ID	Function
0	FULL Identify All relays switch simultaneously ON/OFF and the status LED flashes
1	LOUD Identify All relays switch in order ON/OFF and the status LED flashes
2	QUIET Identify The relays don't switch, only the status LED flashes

## SUBDEVICE\_ENABLE

PID: 0xFF0F

Enable or disable the sub devices of the device.

GET    Send:    PDL=0  
       Receive: PDL=1    (1 Byte SUBDEVICE\_ENABLE\_STATE)

SET    Send:    PDL=1    (1 Byte SUBDEVICE\_ENABLE\_STATE)  
       Receive: PDL=0

SUBDEVICE_ENABLE_STATE	Funktion
0	SUB DEVICES DISABLED
1	SUB DEVICES ENABLED

## Lock device settings

The RDM parameters *Lock Pin* and *Lock State* allow or prohibit changing saved RDM parameters.

### Lock Pin

The four-digit pin code number for the lock function can be set using the Lock Pin parameter.

After entering the correct currently used PIN (Old PIN) in the RDM software (e.g. RDM Configurator), the new, desired PIN can be entered in the New PIN field and saved by setting the parameter.

When delivered, the lock pin is always 0000.

### Lock State

The device settings can be locked or unlocked using the Lock State parameter.

The following lock states can be selected:

Wert	Name	Beschreibung
0	Unlocked	Parameters are editable
1	RDM Locked	Parameters cannot be edited via RDM
2	FULL Locked	Parameters cannot be edited via RDM or on the device

When delivered, the device is always *Unlocked*.

The Lock Pin (PIN Code) is required to change the Lock State parameter.



The RDM parameters Identify Device, Reset Device and Display Level can always be executed, regardless of the lock state.

## SubDevice-Mode

In standard mode, the DMX RELAIS 8 INRUSH+ has a DMX start address from which the DMX channels are used one after the other.

In SubDevice mode, each output is assigned its own DMX address, operation mode and DMX FAIL behavior.

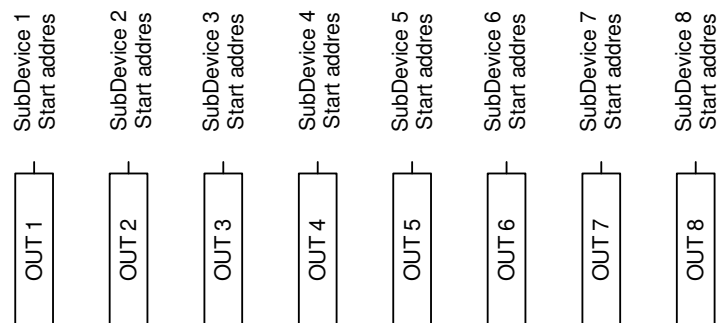
To activate and deactivate the SubDevice mode, the SUBDEVICE\_ENABLE parameter must be used via RDM or the **▲** and **▼** buttons must be pressed simultaneously for approx. 3 seconds in the PE menu on the device.



The SubDevice mode is indicated by the dot lighting up

Then the DMX address, operating mode and DMX FAIL behavior can then be set for each output via RDM.

The assignment of the DMX addresses in SubDevice mode is as follows:



The assignment of the DMX addresses to the outputs is freely possible in SubDevice mode. Several outputs can also use the same DMX address.

## Factory Reset



Before running the Factory Reset, read all steps carefully.

To reset the **DMX-RELAIS 8 INRUSH+** into the delivery conditions use the RDM parameter `FACTORY_DEFAULTS` or proceed as follows directly at the device:

### Factory Reset über control panel:

- Turn on the device (Turn on power supply)
- Select menu `OFF` (Anzeigenabschaltung)
- Press all keys (**↑** and **↓** and **MENU**) until the display changed to - - - -
- The Factory Reset is going to proceed
- Now, the device is ready for use

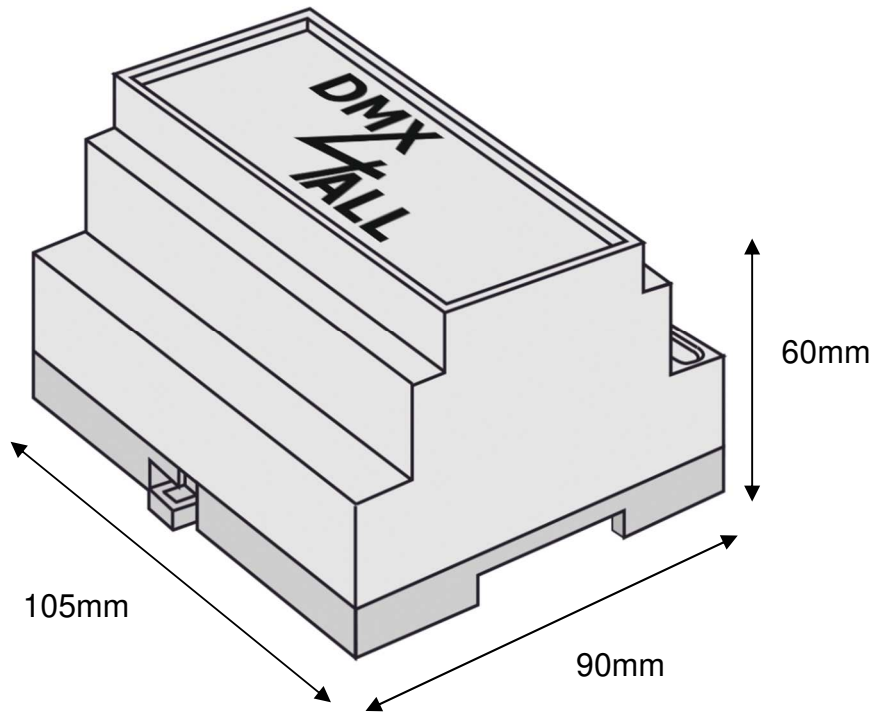
### Factory Reset via address switches:

- Turn off the device (Disconnect power supply !)
- Open housing, by carefully opening the side tab with a screw driver
- Turn the address switches 1 up to 10 on ON
- Turn on the device (Turn on power supply)
- Now, the LED next to the address switch flashes within ca. 3 seconds for 20x
  - ➔ During the LED flashes set switch 10 on OFF
- The Factory Reset is going to proceed
  - ➔ Now, the LED next to the address switch flashes with 4 short light impulses
- Turn off the device (Disconnect power supply!)
- Set all switches on OFF
- Close housing
- Now, the device is ready for use



If a further Factory Reset is necessary, this process can be repeated

## Dimensions



All details in mm

## Accessoires

Power supply 12V





## CE-Conformity



This device is controlled by a microprocessor and uses high frequency. In order to maintain the properties of the module with regard to CE conformity, installation into a closed metal housing in accordance with the EMC directive 2014/30/EU is necessary.

## Disposal



Electronical and electronic products must not be disposed in domestic waste. Dispose the product at the end of its service life in accordance with applicable legal regulations. Information on this can be obtained from your local waste disposal company.

## Warning



This device is no toy. Keep out of the reach of children. Parents are liable for consequential damages caused by nonobservance for their children.

## Risk-Notes



You purchased a technical product. Conformance to the best available technology the following risks should not be excluded:

### **Failure risk:**

The device can drop out partially or completely at any time without warning. To reduce the probability of a failure a redundant system structure is necessary.

### **Initiation risk:**

For the installation of the board, the board must be connected and adjusted to foreign components according to the device paperwork. This work can only be done by qualified personnel, which read the full device paperwork and understand it.

### **Operating risk:**

The Change or the operation under special conditions of the installed systems/components could as well as hidden defects cause to breakdown within the running time.

### **Misusage risk:**

Any nonstandard use could cause incalculable risks and is not allowed.

**Warning:** It is not allowed to use the device in an operation, where the safety of persons depend on this device.



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