DMX-RELAIS 8 INRUSH

User manual

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

Contents

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 voltage (DC) or alternating voltage (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.

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.

LED-State Display
The DMX state is indicated via the LED status.

Several operation modes
The DMX-RELAIS 8 INRUSH offers several operating modes which can be set via RDM:

- Hysteresis 127/128
- Hysteresis 0/1
- Hysteresis 100/150
- Exclusive
- Monostable 1Second

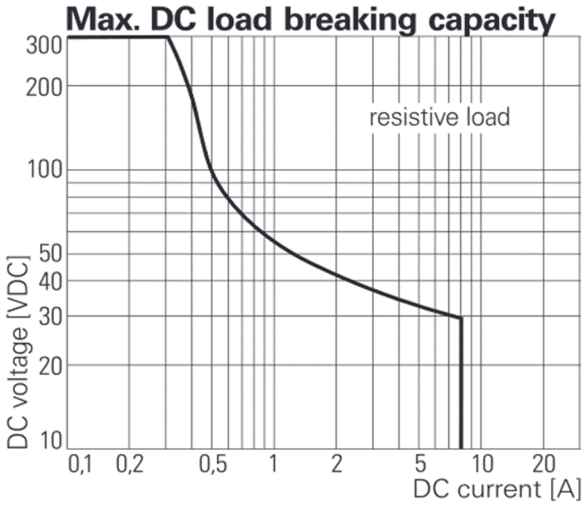
Top hat rail mounting available
Suitable for the DMX-RELAIS 8 INRUSH the DIN rail housing 1050 is available as accessory. Together with the top-hat rail housing 1050, the interface is optimally suited for control cabinet installation.

Technical Data

Power supply:	12-24V DC (280mA @ 12V / 180mA @ 24V) (Units before 2014 only 12V CD / 400mA)
Protocol:	DMX512 RDM
DMX-Channels:	8 DMX channels
DMX-FAIL:	HOLD / 0-100%
Operation modes:	Hysteresis 127/128 Hysteresis 0/1 Hysteresis 100/150 Exclusive Monostable 1Second
Output:	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
Connections:	Screw terminals
Dimensions:	99mm x 82mm

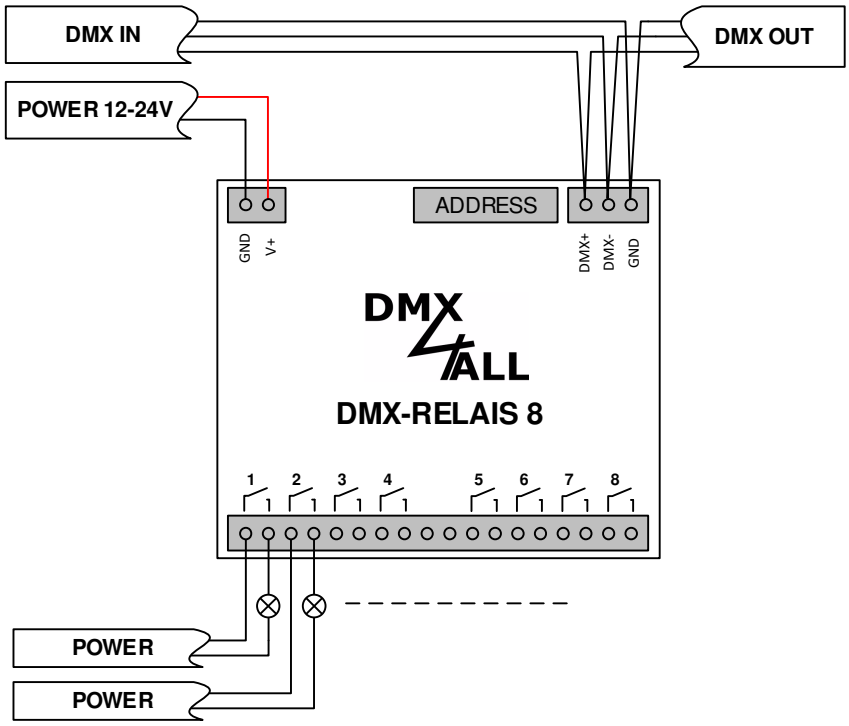
Max. DC load

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)

LED-Display-Codes

The integrated green LED is a multi-function display.

During to the normal operation mode the LED lights permanently. In this case the device is working.

Furthermore, the LED shows the current status. In this case the LED lights up in short pitches and then is missing for longer time.

The number of the flashing lights is equal to the status number.

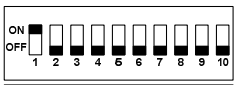
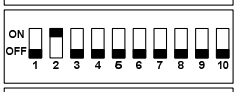
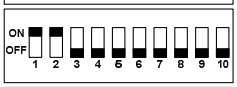
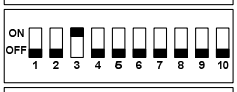
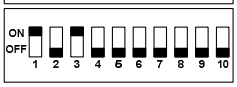
Event-number	Error	Description
1	NO DMX	There is no DMX signal
2	Address error	Please check the set DMX address

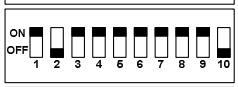
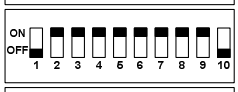
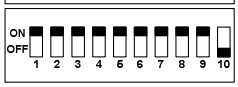
DMX-Addressing

The start address is adjustable about DIP switch 1-9.

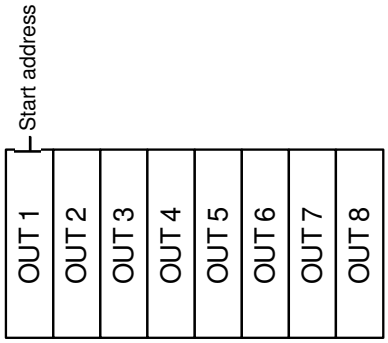
Thereby switch 1 has the valency 2^0 (=1), switch 2 the valency 2^1 (=2) and so on, up to switch 9 with the valency 2^8 (=256).

The sum of the values of the switches set to ON corresponds to the start address.

Adresse	Schalter
1	
2	
3	
4	
5	

Adresse	Schalter
...	...
508	
509	
510	
511	

The assignment of the DMX addresses is as follows:



The RDM parameter DMX_STARTADDRESS can also be used to set the DMX start address.

A DMX start address set via the DIP switches has priority over the start address set via RDM.

DMX-FAIL Function

The DMX-RELAIS 8 INRUSH has a DMX-FAIL function keeping the last DMX value (HOLD) or uses a predefined value set by RDM in case of a failed DMX-Signal.

The HOLD function can be activated via RDM or switch 10:

Switch 10 ON	➔	DMX-HOLD activated
Switch 10 OFF	➔	DMX-HOLD not activated (RDM configuration is used)

If HOLD is switched on (switch 10 = ON), the last received DMX values are remained in case of a DMX signal failure.

If HOLD is switched off (switch 10 = OFF), the DMX values are replaced with a value set by RDM in case of a DMX signal failure. In the delivery state this value is 0, so that the relays switch off.

⚠ In case of a power failure the DMX values held with HOLD are discarded!

⚠ A value set by RDM is deleted when HOLD is selected. After switching off the HOLD function, the default value 0 is used.

Operating modes

Personality 1: Hysteresis 127/128

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

The switching threshold (Hysteresis) is 127/128 which 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 operating mode, the relays switch independently of each other each via one DMX channel.

The switching threshold (Hysteresis) is 0/1 which 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 operating mode, the relays switch independently of each other each via one DMX channel.

The switching threshold (Hysteresis) is 100/150 which 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 operating mode, 2 relays are linked to one another so that 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 operating mode, the relays switch independently of each other 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.

If the DMX start address is set via RDM, all address switches must be set to OFF! A DMX start address set by the address switches is always prior !

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
DISPLAY_LEVEL		✓	✓	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[1)]			✓	PID: 0xD400
IDENTIFY_MODE[1)]		✓	✓	PID: 0xD402
SUBDEVICE_ENABLE1)		✓	✓	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)

IDENTIFY_MODE
PID: 0xD402

Stellt den Mode ein der mit IDENTIFY_DEVICE ausgeführt wird.

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	Funktion
0	FULL Identify All relays switch ON / OFF simultaneously and the status LED flashes
1	LOUD Identify The relays switch ON / OFF one after the other and the status LED flashes
2	QUIET Identify The relays do not 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

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.

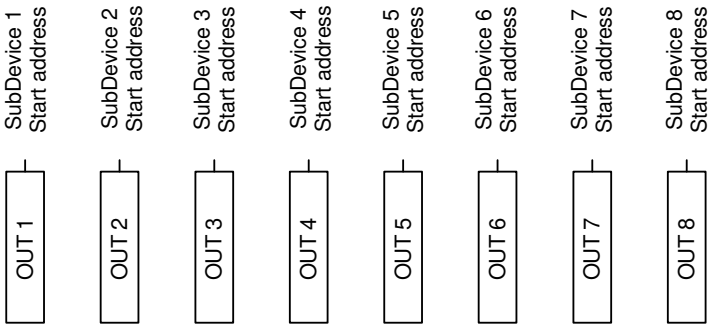
In SubDevice mode, each output is assigned its own DMX address, operation mode and DMX FAIL behavior.

To activate and deactivate the sub-device mode, the parameter SUBDEVICE_ENABLE must be activated via RDM.

Then the setting of the DMX address, operation mode and the DMX FAIL behavior for each output is made possible via RDM.

An exception is the Exclusive operating mode. If this is selected, the Exclusive operating mode is also set for the linked output.

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.

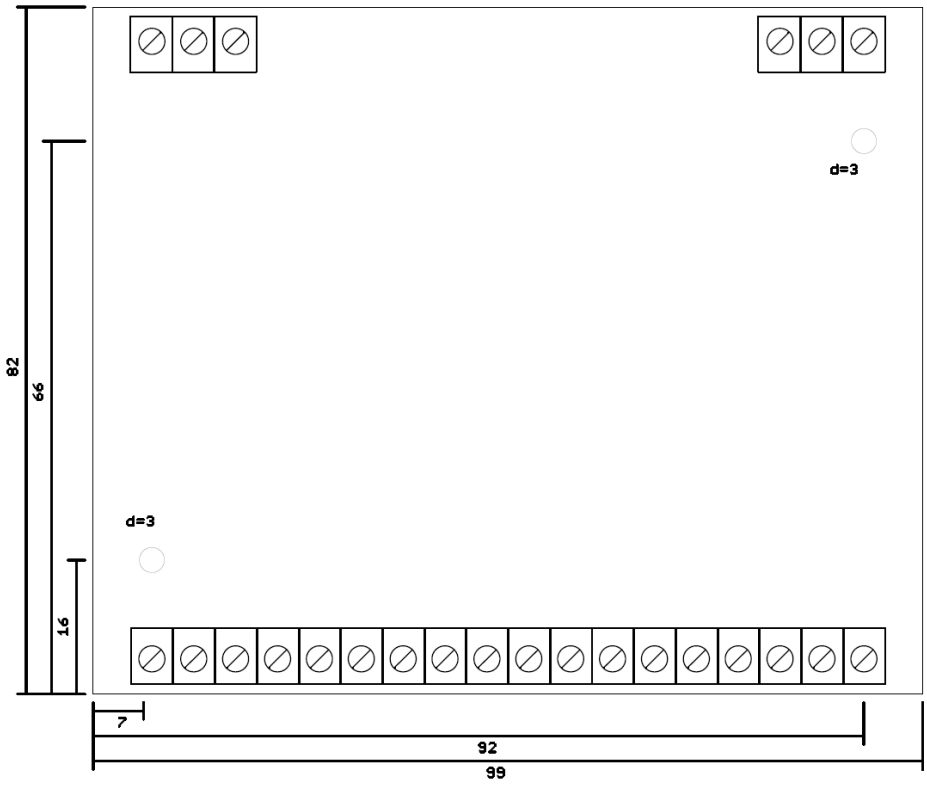
To reset the **DMX-RELAIS 8 INRUSH** to delivery state, proceed as follows:

- Turn off device (disconnect power supply !)
- Set DIP switch 1 up to 10 to ON
- Turn on device (connect power supply)
- The LED lights up 20x during ca. 3 seconds

  ➔ While the LED lights up set DIP switch 10 to OFF
- Now, the Factory Reset is executed

  ➔ The LED lights up with error code 4
- Turn off device (disconnect power supply !)
- Now, the device can be used

Dimensions



All details in mm

Accessories

Top-hat rail housing 1050

Power supply 12V

CE-Conformity

This assembly (board) 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. Conformable to the best available technology the following risks should not 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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