ArtNet Relais/Analog 4

User manual

Contents

Important Notes

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

A firmware update is recommended after receipt the product. This is the only way to ensure that the device has the latest version. You can find the latest firmware on the homepage.

Description

The ArtNet Relais/Analog 4 is designed for several controlling tasks.

4 switch contacts for direct and alternating voltage
4 potential-free switching outputs (normally open / NO) with up to 8A switching capacity for switching DC or AC voltage.

4 analog outputs
Four analog outputs with 0-10V vs 1-10V can be used to control systems with analog inputs.

Analog outputs with 10mA
Each analog output has an output driver with max 10mA available.

For power supply from 12V up to 24V
The ArtNet Relais/Analog Interface 4 runs with supply voltages from 12V up to 24V DC.

DMX, Art-Net or RDM
Optionally the ArtNet Relais/Analog Interface 4 can be controlled via DMX, Art-Net (DMX over Ethernet) or RDM (Remote Device Control).

RDM support
The ArtNet Relais/Analog Interface 4 allows the configuration via RDM or DMX.

DMX-FAIL Function
An adjustable DMX FAIL function offers the option to get in case of DMX signal loss the current state (HOLD) or assuming a preset value.

Easy configuration
A user-friendly configuration via a web browser allows a fast and uncomplicated setting of all parameters.

Power supply for WLAN-Bridge
In addition the ArtNet Relais/Analog 4 has a USB connector providing a power supply with 5V/500mA for external devices e.x. a WiFi-bridge.
As WLAN-bridge we suggest: TP-Link TL-WR702N or TP-Link TL-WR802N

Firmware-Update-Function
In order to take advantage of future features, the ArtNet Relais/Analog 4 has a firmware update function.
This can be launched from the browser so that no access to the device is necessary!

DMX4ALL-Command interface
The ArtNet Relais/Analog 4 has another TCP communication interface.
This interface uses the DMX4ALL-Commands via TCP packets.

LED status display
The LED status display shows the DMX reception.

Top hat rail mounting available
The DIN rail housing 1050 is available as accessory for the ArtNet Relais / Analog 4.

Data sheet

|	
Power supply:	12-24V DC
Power consumption:	200mA@12V; 140mA@24V (without connected load at the analog output)
Ethernet:	RJ45
Protocol:	DMX512 ArtNet™ (downwards compatible) DMX4ALL Commands RDM
DMX channels:	4 up to 12 channels
Output:	4x switch contacts (closer / NO) Each max. 8A / 250V~ (165A@20ms inrush current) or up to 8A DC (➔ note max. DC load!) 4x analog output 0-10V / 1-10V (max. 10mA)
DMX-FAIL:	Hold / 0-100%
Connections:	screw terminals
USB-Connection:	5V/500mA For power supply of external devices (e.g. WLAN-Bridge)
Dimension:	99mm x 82mm

Max. DC load

The maximum current the switch contacts of the **ArtNet Relais/Analog 4**
can switch is shown in the following graph depending on the switching voltage:
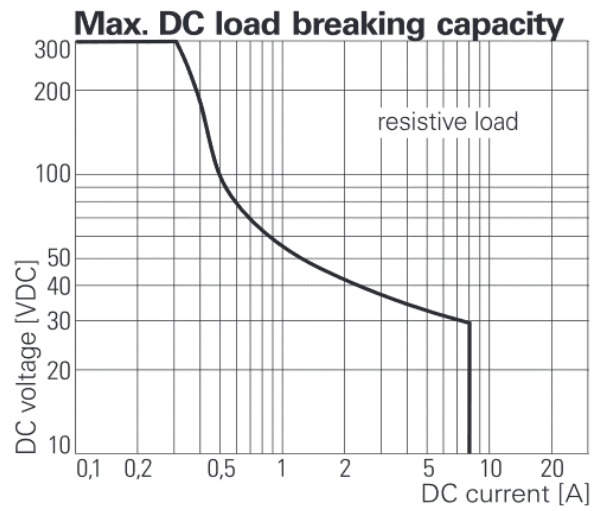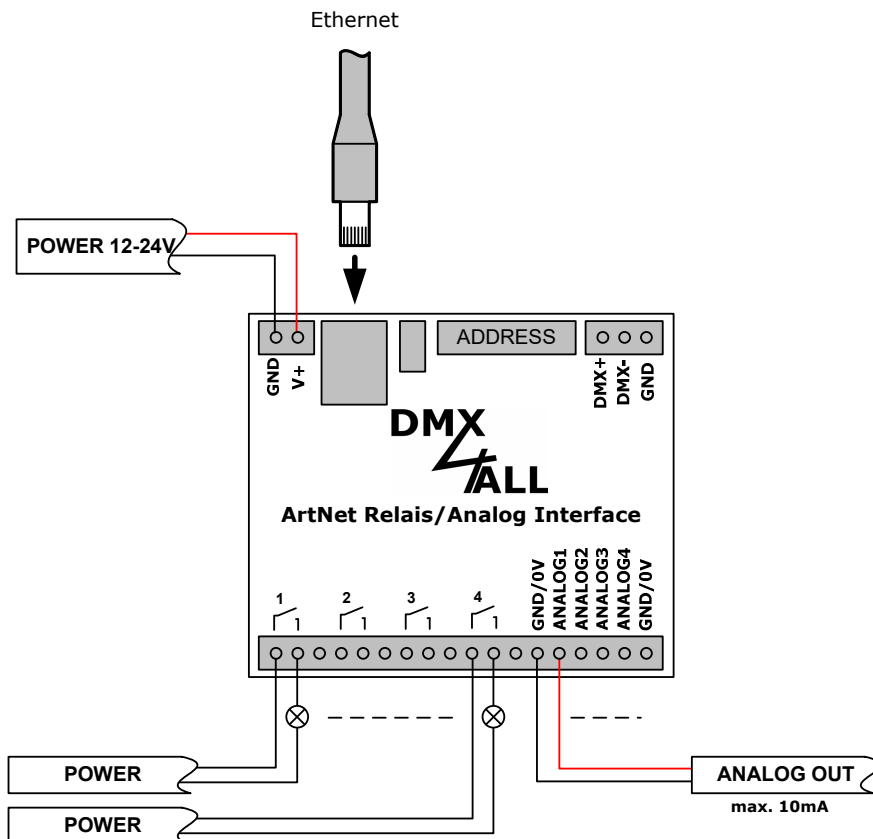

(Quelle: Data sheet RTS3T012)

Connection

Operation with DMX:
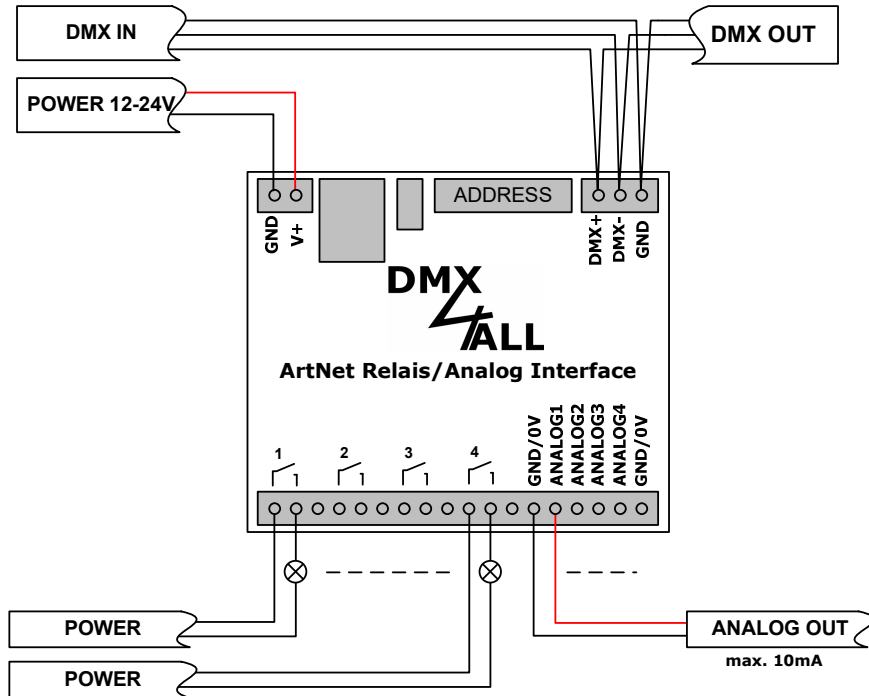
Operation with ArtNet:

LED Display Codes

The integrated LED is a Multi-functional-display.

In the normal DMX-mode the LED flashes non-stop. In this case the device is working. If the LED is permanently dark, there is no DMX512-signal at the entry.

Also the LED signalled the operation status. In this case the LED lights up in short pitches and then turns into off modus. The Number of flashing signals is equal to the number of the error status.

Error Status	Error	Description
1	No DMX	There is no DMX-signal at the entry
2	Address error	Please check the adjusted starting address

DMX-Addressing

The DMX-starting address is adjustable via switch 1to 9.

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

The sum of the values of the switches showing ON correspond to the starting address.

| Address	Switch		Address	Switch
1			...	...
2			508	
3			509	
4			510	
5			511	

⚠️ If switches 1-9 are OFF, the DMX start address set via the web interface is used!

Set the IP with IP-Configurator

The **IP-Configurator** allows the setting of the IP-Address and net mask also, if the network settings of the PC are not in the IP-Range of the ArtNet Relais/Analog 4 Interface.

- Install the program IP-Configurator
- Connect the ArtNet Relais/Analog Interface 4 to network and turn on the device.
- Start the program IP-Configurator
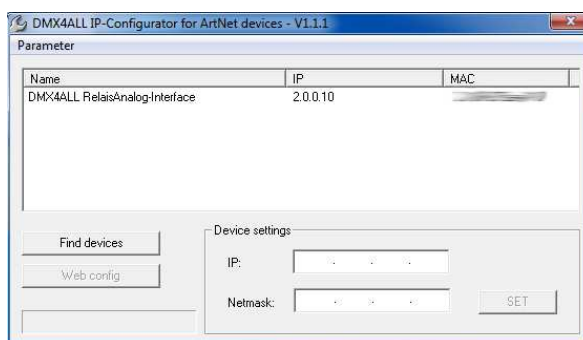
- The ArtNet Relais/Analog Interface 4 is shown in the list
- Select the entry (click)
- Enter the new IP and net mask
- Click SET

Set the IP with web browser

The assigned **IP-Address** which will be used for the web-interface as well as for the ArtNet is within the delivery status **2.0.0.10** .

Set the network card of your PC to this IP-Range to call the IP-Address 2.0.0.10 via the web browser.

The PCs network settings must be the **IP-Address 2.0.0.1** and the **subnet mask** must be **255.0.0.0**.

Please take further details from the ArtNet-specifications.
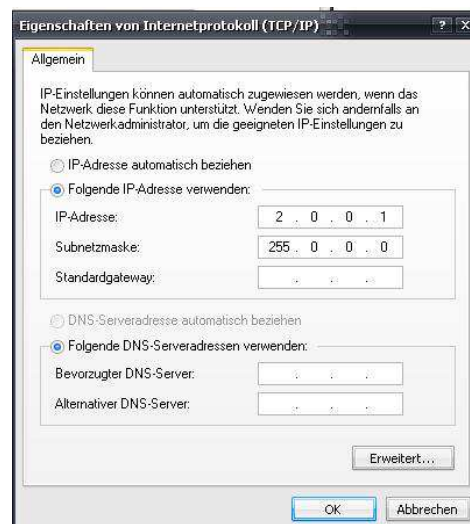
Device Configuration

Call, via the address task at the web browser, the IP of the **ArtNet Relais/Analog 4** (Delivery state: 2.0.0.10) to get the following configuration site:

⚠️ Each ArtNet-Node needs an own **IP-Address,** so the assignment in the network is clear. Use in accordance to the ArtNet-Specification the IP-Address 2.x.x.x or 10.x.x.x .

The **Net mask** is according to the ArtNet-Specification 255.0.0.0 .

ℹ️ Each other IP-Address can also be used for a better distinction, e.g. 192.168.1.10 . In this case the net mask must be adapted to 255.255.255.0 !

For a better distinction any name can be used for the ArtNet-Node.

The **Short-name** is limited to 18 signs and the **Long-name** is limited to 64 signs.

Under the ArtNet-Settings you can carry out the settings for the **Subnet**, **Net** and **Port**/**Universe**.

The **DMX-Start Address** shows the Channels within the according DMX-Universe from whence the outputs should be appealed.

Thereby the DMX-Starting address complies to relay 1 and the following addresses comply to relay 2-4 followed by the analog outputs 1-4.
If a DMX-Starting address is adjusted via the switches this address is regarding prior.

⚠ Note, that the channel assignment can differ with placed MODE-Jumper !

Within the output settings for each relay and for each analog output individual **names** can be entered.

Furthermore, after turning on (**Power on value**) the conditions for the relays can be defined. Turning on the relays can occur delayed.

The **Factory Settings** will be restored by entering the number 7319.

SAVE stored the configurations respectively restored the Factory Settings.

Relay switching threshold

The relays of the ArtNet Relay/Analog 4 are controlled via 4 individual DMX channels (separately from the analog outputs) or together with the analog outputs.

If the relays are controlled via separate DMX channels, they switch at a DMX value of 128 or greater.

If the relays are controlled together with the analog outputs, they switch at a DMX value of 1 or greater.

Relays switch together with the analog outputs

This mode does not use separate DMX channels for the relays. The relay switches as soon as the analog output is controlled with a DMX value greater than 0.

Via MODE-Jumper 1 this mode is activatable:

Relais and Analog separate controllable

Relay switches together with the analog output
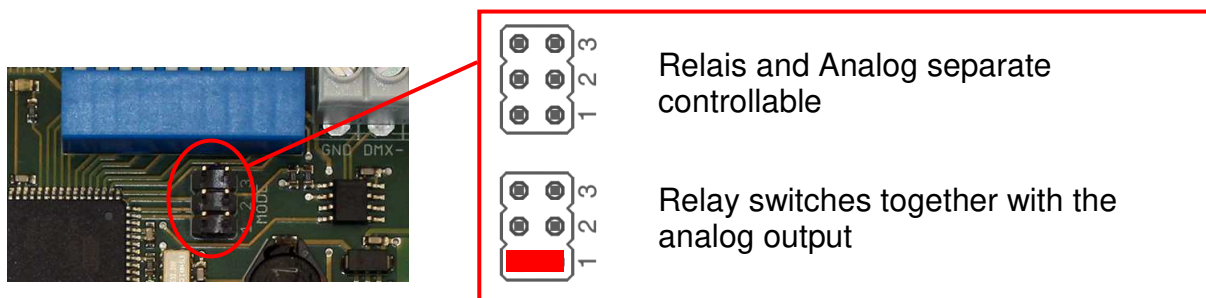
In this case the DMX-Channel assignment is as following:

DMX-Channel assignment by 8 Bit:

Start address

| Analog+Relais 1	Analog+Relais 2	Analog+Relais 3	Analog+Relais 4

DMX-Channel assignment by 10 Bit:

Start address

Analog+Relais 1 H	Analog+Relais 1 L	Analog+Relais 2 H	Analog+Relais 2 L	Analog+Relais 3 H	Analog+Relais 3 L	Analog+Relais 4 H	Analog+Relais 4 L

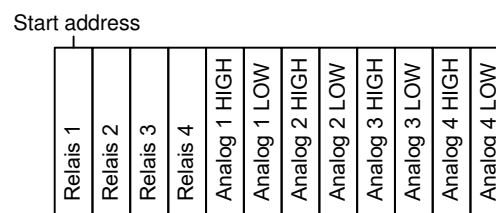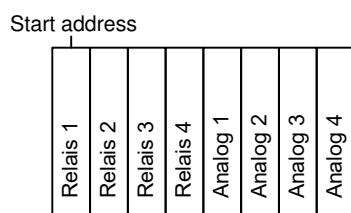# Set resolution of analog outputs

The analog output resolution will be adjusted via the MODE-Jumper 2.

The analog outputs are operable with a resolution of 8 Bit (256 steps) or 10 Bit (1024 steps).

8 Bit   (256 Steps)

10 Bit (1024 Steps)
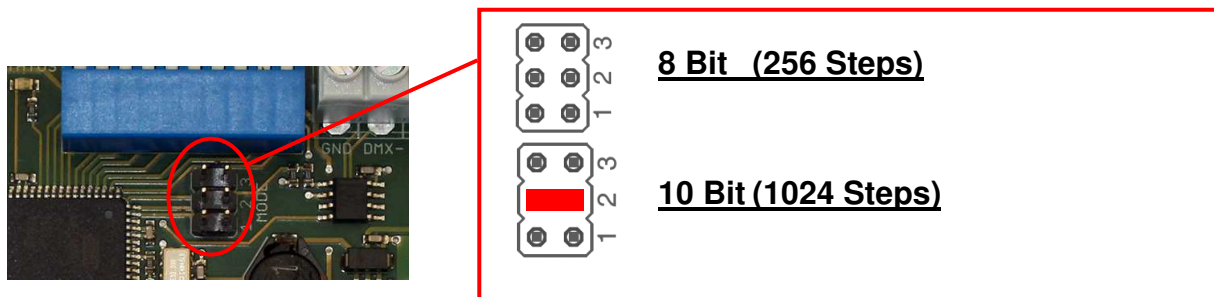
Depending on the resolutions setting the analog output there is needed per output one or two DMX-channels, as shown in the following picture.

DMX channel configuration with 8 Bit:

Start address

Relais 1	Relais 2	Relais 3	Relais 4	Analog 1	Analog 2	Analog 3	Analog 4

DMX channel configuration with 10 Bit:

Start address

Relais 1	Relais 2	Relais 3	Relais 4	Analog 1 HIGH	Analog 1 LOW	Analog 2 HIGH	Analog 2 LOW	Analog 3 HIGH	Analog 3 LOW	Analog 4 HIGH	Analog 4 LOW

Set the output voltage 0-10V / 1-10V

The analog outputs output voltage is adjustable via the MODE-Jumper 3:
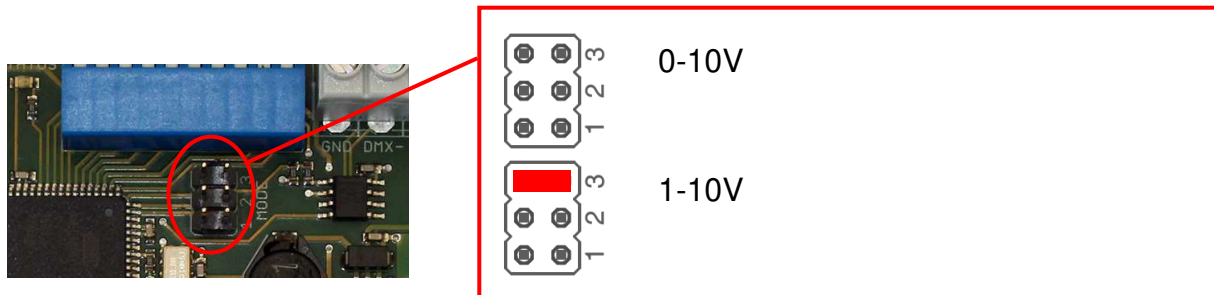
DMX-FAIL Function

The **ArtNet Relais/Analog 4** has a DMX-FAIL Function which stores the last value in the case of a DMX-signal (HOLD) loss or uses a value set with RDM before.

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

    Switch 10 ON   ➔ DMX-HOLD active

    Switch 10 OFF   ➔ DMX-HOLD not active

If HOLD is switched on (switch 10 = ON), the last received DMX values are kept 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 DMX signal failure. In delivery state this value is 0, so the relays switch off.

⚠ In case of a power failure the held DMX values are rejected!

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

DMX4ALL-Command support

The **ArtNet Relais/Analog 4** has another communication interface which receives data via TCP-packages at Port 10001.

TCP-Control

For controlling the interface directly via TCP-connection please use the set web browser IP-address and use Port 10001. The sent and received data are RAW-data packages.

Please take the potential DMX4All-Commands from the separated DMX4ALL-Command description.

VCP-Control

For controlling via a COM-Port a TCP-VCP-program must be installed, providing a virtual Com Port (VCP).
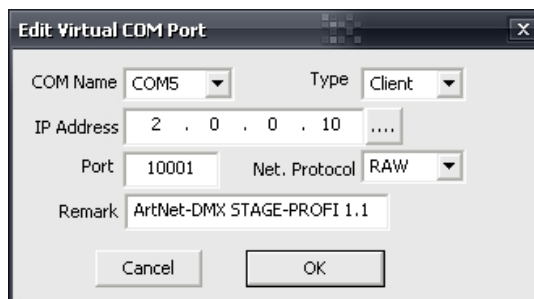
We recommend the tool *Serial to Ethernet Connection* tested by us. This tool is available as download within the support area.

It is needed to enter a password during the installation (see adjacent figure).

After the installation start the tool „Centos SEC" being on the desktop. Add a VCP with *Add* and specify the parameters for this VCP-Port as per margin.

Please mind to use the IP which is entered via the web browser.

Finally click **Update all** in the main menu to activate the VCP.
Now the status *Available* is shown and the COM-Port is displayed in the device manager.

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 at the ArtNet Relais/Analog 4 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
DMX_FAIL_MODE		✓	✓	E1.37
SERIAL_NUMBER[1]			✓	PID: 0xD400

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

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 outputs switch ON/OFF simultaneously and the status LED flashes
1	LOUD Identify The outputs switch ON/OFF in sequence and the status LED flashes
2	QUIET Identify The outputs do not switch, only the status LED flashes

Factory Reset

It is possible to reset the **ArtNet Relais/Analog 4** into the delivery status.

Please proceed as follows:

- Turn off the device
- Place the MODE-Jumper J1 to J2 as shown
- Turn on the device
- The reset executes and the LEDs at the RJ45-connection light up 3x simultaneously as confirmation
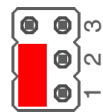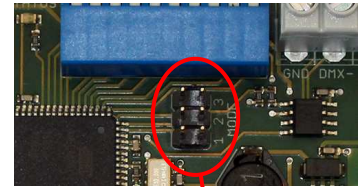
Alternatively, you can generate the delivery status via the web browser:

- Open the Main Settings within the web browser
- Enter the code „7319" in Factory Defaults
- Click *Save*
- Subsequently wait at least 10 seconds

Execute Update

The **ArtNet Relais/Analog 4** has an Update-Function which allows to transfer prospective Firmware-Updates.

Please proceed as follows:

- Turn off the device
- Place the MODE-Jumper J2 to J3 as shown
- Turn on the device
- The yellow LED lights up
- Occur a connection between PC and network
- Start the Update-Software **DMX4ALL LAN-Updater**
- Select the **ArtNet Relais/Analog 4** from the list
- Click *Firmware-Update*
- Select the Firmware-Data (.bin) and confirm
- Wait until the Update has finished
- Set the MODE-Jumper to the original condition
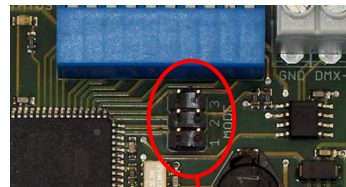
⚠ If during the Update occurs an error you can start the Update again any time.

Alternatively, the Firmware Update can be activated via web browser:

- *Open the Firmware Update* within the web browser
- Enter the shown code "1379" in the entry field and click *Send*
- Start the **DMX4ALL LAN-Updater**
- Select the **ArtNet Relais/Analog 4** from the list
- Click *Firmware-Update*
- Select the Firmware-Data (.bin) and confirm
- Wait until the Update has finished
- Click *Back* in the web browser

Dimension
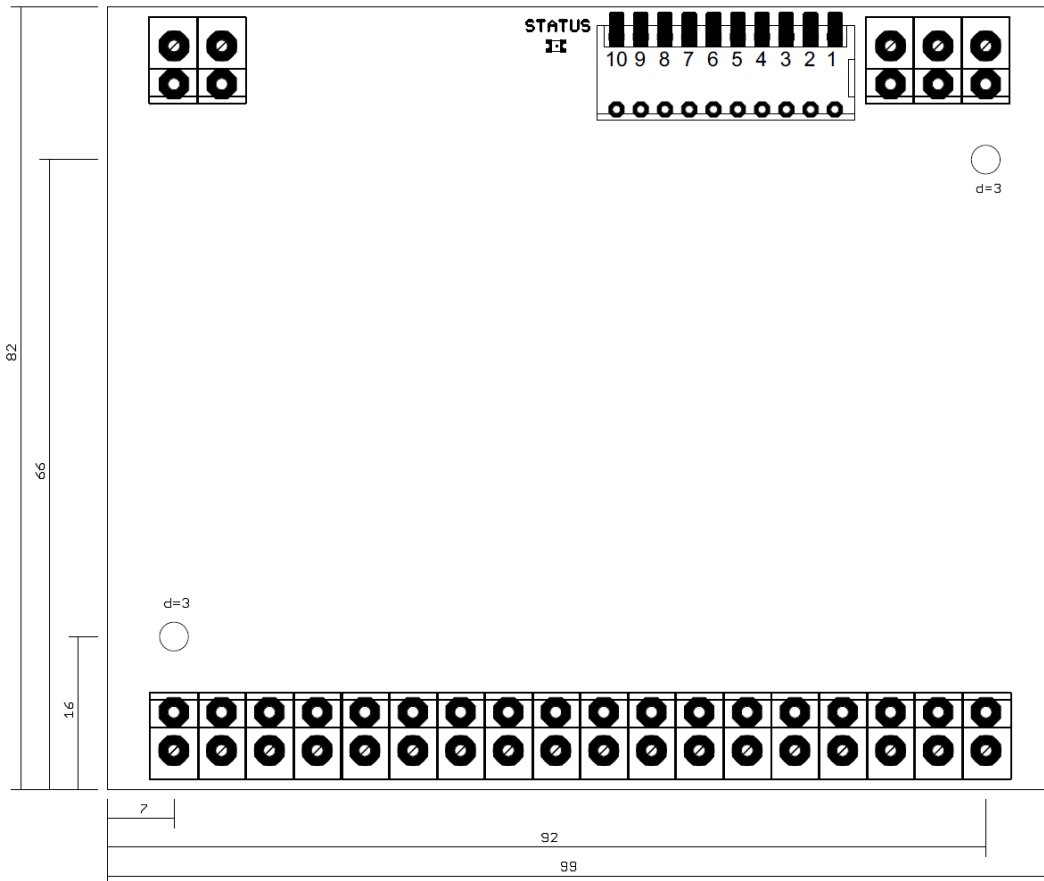
(all details in mm)

Equipment

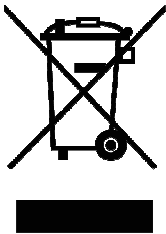**Top-hat rail housing 1050**

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.

DMX4ALL

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