

BT-NODE24

ETHERNET NODE / DMX PROCESSOR



ENGLISH

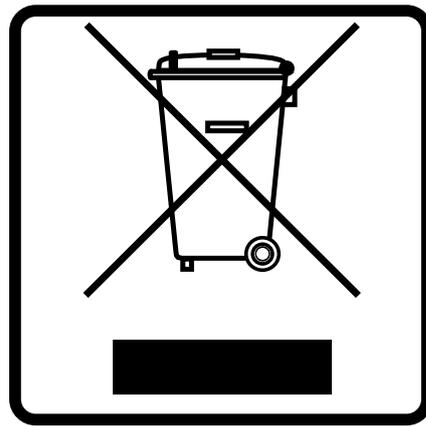
Operation Manual

Other languages can be downloaded from:
WWW.BRITEQ-LIGHTING.COM



Version: 1.1 (software >V0.6.0)





EN - DISPOSAL OF THE DEVICE

Dispose of the unit and used batteries in an environment friendly manner according to your country regulations.

FR - DÉCLASSER L'APPAREIL

Débarrassez-vous de l'appareil et des piles usagées de manière écologique conformément aux dispositions légales de votre pays.

NL - VERWIJDEREN VAN HET APPARAAT

Verwijder het toestel en de gebruikte batterijen op een milieuvriendelijke manier conform de in uw land geldende voorschriften.

DU - ENTSORGUNG DES GERÄTS

Entsorgen Sie das Gerät und die Batterien auf umweltfreundliche Art und Weise gemäß den Vorschriften Ihres Landes.

ES - DESHACERSE DEL APARATO

Reciclar el aparato y pilas usadas de forma ecologica conforme a las disposiciones legales de su país.

PT - COMO DESFAZER-SE DA UNIDADE

Tente reciclar a unidade e as pilhas usadas respeitando o ambiente e em conformidade com as normas vigentes no seu país.

OPERATION MANUAL

Thank you for buying this Briteq® product. To take full advantage of all possibilities and for your own safety, please read these operating instructions very carefully before you start using this unit.

FEATURES

- High speed Art-Net and sACN Node with 4 highly configurable DMX ports.
- Gigabit Ethernet I/O, based on high speed Marvell switch, without linking delay.
- Automatic Ethernet bypass on power fails.
- Perfect for install market with configurations over Art-Net support and DHCP.
- Complies to IEEE 802.3-2005 standard for fully compliant hi-speed Gigabit Ethernet over long cable lengths.
- Integrated web interface with support for mobile devices.
- NFC tag for easy website access on mobile devices.
- The 4 DMX ports can all be configured as in or outputs:
 - Configured as input: normal mode
 - Configured as output: single, LTP, HTP or ZERO mode.
- Multiple pre-defined presets available and custom presets.
- RDM over Art-Net compatible.
- All DMX ports are equipped with 3pin or 5pin Neutrik® XLR-connectors (both versions available)
- 100% electrical isolation between all in/outputs: problems on 1 port will not influence the other ports.
- MIDI bridge functionality via Ethernet coming soon.
- Power options:
 - 100-240VAC 50/60Hz Neutrik® TRUE-1 daisy chaining.
 - PoE class 0 input. 36-57V
- Housing ½ 19" diecast housing with different installation options:
 - 1-unit fits 1U 19" rack (19" adapter included)
 - 2-units fit together in a 1U 19" rack (adapters included)
 - Easy truss mounting with wall adapter (optional)
 - Strong rubber protection adapters for stage use (optional)
- Developed by Briteq® in Belgium and made in Europe!

BEFORE USE

- Before you start using this unit, please check if there's no transportation damage. Should there be any, do not use the device and consult your dealer first.
- Important: This device left our factory in perfect condition and well packaged. It is absolutely necessary for the user to strictly follow the safety instructions and warnings in this user manual. Any damage caused by mishandling is not subject to warranty. The dealer will not accept responsibility for any resulting defects or problems caused by disregarding this user manual.
- Keep this booklet in a safe place for future consultation. If you sell the fixture, be sure to add this user manual.
- To protect the environment, please try to recycle the packing material as much as possible.

Check the contents:

Check that the carton contains the following items:

- BT-NODE24 (XLR 3pin or 5pin version)
- Operating instructions
- Power cable
- 19" adapter to install 1 unit in a 19" rack
- 19" adapter to install 2 units side by side in a 19" rack

SAFETY INSTRUCTIONS:



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



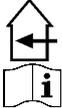
CAUTION: To reduce the risk of electric shock, do not remove the top cover. No user-serviceable parts inside. Refer servicing to qualified service personnel only.



The lightning flash with arrowhead symbol within the equilateral triangle is intended to alert the user or the presence of un-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within the equilateral triangle is intended to alert the user to the presence of important operation and maintenance (servicing) instructions in the literature accompanying this appliance.



This symbol means: indoor use only



This symbol means: Read instructions

- To prevent fire or shock hazard, do not expose this appliance to rain or moisture.
- To avoid condensation to be formed inside, allow the unit to adapt to the surrounding temperatures when bringing it into a warm room after transport. Condense sometimes prevents the unit from working at full performance or may even cause damages.
- This unit is for indoor use only.
- Don't place metal objects or spill liquid inside the unit. No objects filled with liquids, such as vases, shall be placed on this appliance. Electric shock or malfunction may result. If a foreign object enters the unit, immediately disconnect the mains power.
- No naked flame sources, such as lighted candles, should be placed on the appliance.
- Don't cover any ventilation openings as this may result in overheating.
- Prevent use in dusty environments and clean the unit regularly.
- Keep the unit away from children.
- Inexperienced persons should not operate this device.
- Maximum safe ambient temperature is 40°C. Don't use this unit at higher ambient temperatures.
- Always unplug the unit when it is not used for a longer time or before you start servicing.
- The electrical installation should be carried out by qualified personal only, according to the regulations for electrical and mechanical safety in your country.
- Check that the available voltage is not higher than the one stated on the rear panel of the unit.
- The socket inlet shall remain operable for disconnection from the mains.
- The power cord should always be in perfect condition: switch the unit immediately off when the power cord is squashed or damaged. It must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard
- Never let the power-cord come into contact with other cables!
- This appliance must be earthed to in order comply with safety regulations.
- In order to prevent electric shock, do not open the cover. Apart from the mains fuse there are no user serviceable parts inside.
- Never repair a fuse or bypass the fuse holder. Always replace a damaged fuse with a fuse of the same type and electrical specifications!
- In the event of serious operating problems, stop using the appliance and contact your dealer immediately.
- Please use the original packing when the device is to be transported.
- Due to safety reasons it is prohibited to make unauthorized modifications to the unit.

MAINTENANCE

Clean by wiping with a polished cloth slightly dipped with water. Avoid getting water inside the unit. Do not use volatile liquids such as benzene or thinner which will damage the unit.

DESCRIPTION

FRONT PANEL

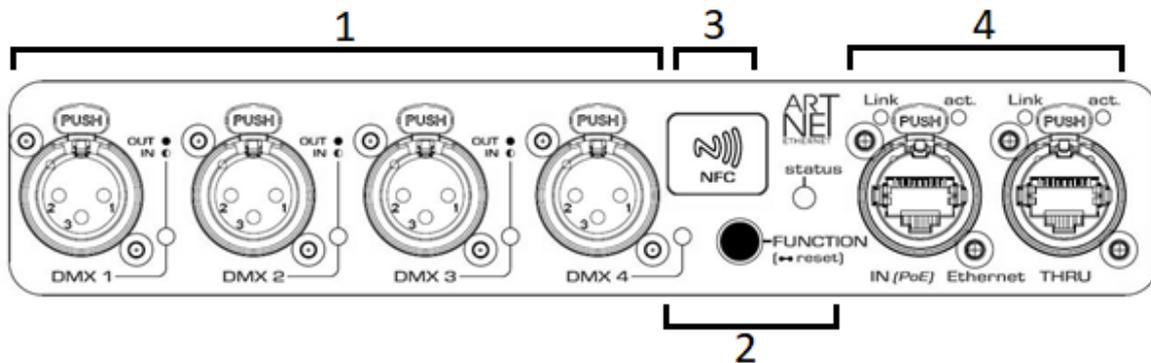


Figure 1. Front panel

1. **4x XLR female connectors:** XLR-3pin or XLR-5pin, depending on the version.
 - **LED on:** port configured as output
 - **LED off:** port not used
 - **LED blinking:** port configured as input
2. **FUNCTION button and STATUS led:** To load a preset and see the preset color. The color of the status led indicates which preset is loaded. In the web application (see further) you can make the preset and choose the corresponding color for the status led. Press and hold for 5 seconds to reset the node. The node will regain its default IP address.
3. **NFC tag:** Hold your NFC device (smartphone, ...) here to get the IP address of the BT-NODE24.
4. **2x Neutrik® RJ45 Ethercon:** Gigabit network connection with one input for PoE.
 - **Link LED:**
 - Blinks when packets are received or sent.
 - **ACT. LED:**
 - **1Gbit/s Gigabit connection:** On.
 - **100Mbit/s or 10Mbit/s connection:** Off.

REAR PANEL

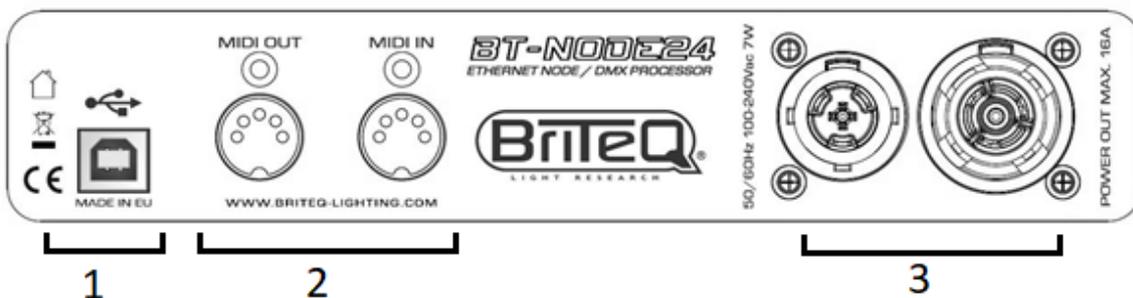


Figure 2. Rear panel

1. **USB port:** Only used for service maintenance. Please do not use this port.
2. **2x MIDI connectors:** can be used to send / receive MIDI instructions over Ethernet. *(Note: will be implemented with next software update)*
3. **Neutrik® TRUE-1 power connector:** 100V – 240V 50/60Hz.

IMPORTANT NOTE

All XLR-connectors are female, which is the standard “DMX-output” connector. So if you configure a DMX-port as a “DMX-input”: don’t forget to add an XLR male/male-adaptor. Adapters XLR-3pin male/male are separately available with order code 1318. Adapter cables XLR-5pin male/male will be available soon.



ABOUT ART-NET

Art-Net is an Ethernet protocol based on the TCP/IP protocol suite. Its purpose is to allow transfer of large amounts of DMX512 data over a wide area using standard networking technology.

Credits: Art-Net™ Designed by and Copyright Artistic License Holdings Ltd

WEB INTERFACE

The complete device can be configured from an intuitive Web interface. You just have to login on the IP address of the unit. If you do not know the IP address, you can quickly use the NFC tag or Art-Net poll software like “DMX-Workshop” (free downloadable tool: <https://art-net.org.uk/resources/dmx-workshop/>).

By default, DHCP is enabled. After start-up the device will search for a DHCP server. This is indicated by the status led flashing red, green and blue. If no server is found after 30s the device takes a static IP address. Make sure that the computer used to browse to node, is setup in the correct network address range (IP 2.x.x.x and subnet 255.0.0.0). The default static IP address can also be calculated from the MAC address, following the Art-Net standard: take the MAC address (u.v.w.x.y.z) and the OEM code for the Briteq node. The static IP address is:

$$IP = 2.x + 212.y.z$$

Important Note: the printed MAC address on the bottom is in hexadecimal format.

After all connections and setup on the computer are completed, open your favorite web browser (we recommend Firefox) and enter the IP address you want to reach in the URL field : [Http://2.x.x.x](http://2.x.x.x) or the address set by the DHCP server.



Figure 3. Website URL

You'll end up at the home page of the device. This page has a complete overview of the DMX port settings.

Note: press the small question mark buttons to get more information about a parameter.

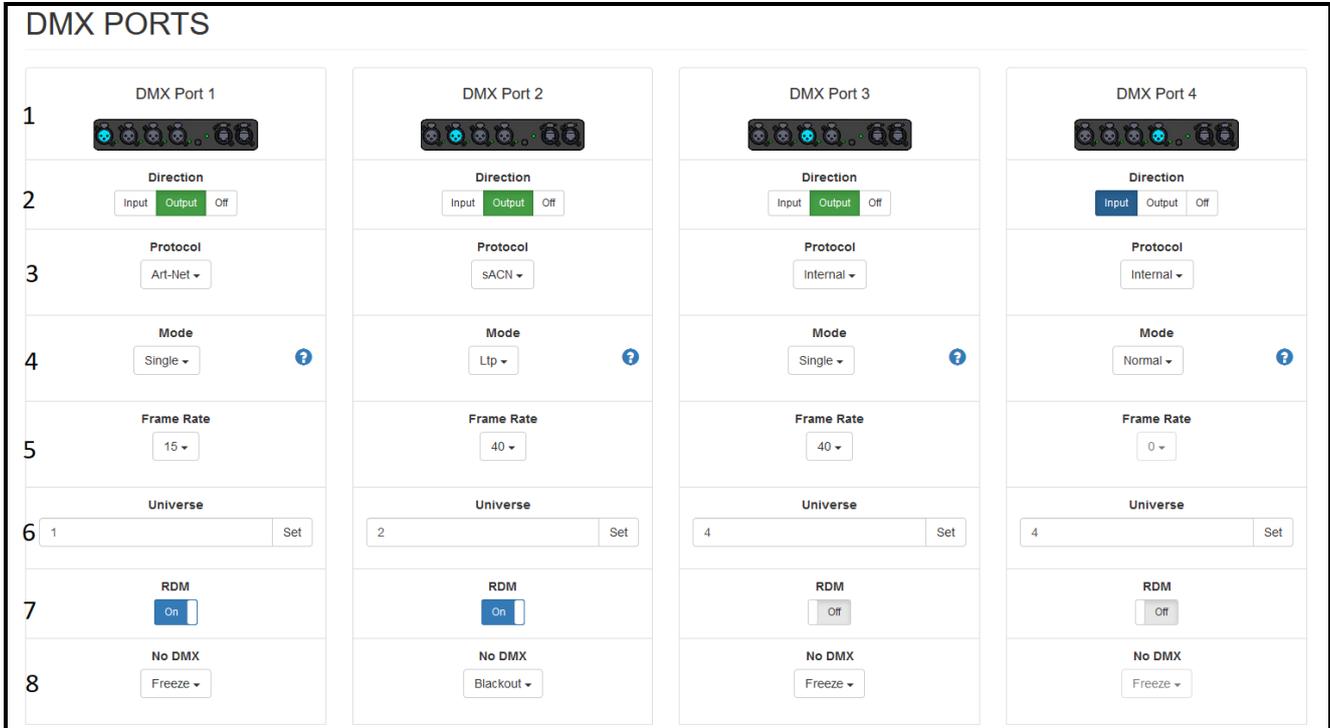


Figure 4. Website home screen

1. Visual representation of the port
2. Port direction: Input, output or off.
3. Protocol: Art-Net or sACN.

4. **Port mode:**

If PORT DIRECTION = OUTPUT: the following modes are available:

- **SINGLE:** the DMX-signal is sent to the DMX Port from the selected Art-Net or sACN universe in "Universe Number".
- **HTP:** The DMX-signal is sent to the DMX Port from the IP merging of the selected Art-Net or sACN universe in "Universe Number". The BT-NODE24 compares the values on the inputs and sends the highest value to the DMX Port for each DMX channel.
- **LTP:** The DMX-signal is sent to the DMX Port from the merging of the selected Art-Net or sACN universe in "Universe Number". The BT-NODE24 compares the values on the inputs and sends the last changed value to the DMX Port for each DMX channel.
- **ZERO:** The BT-NODE24 sends "0" to all channels.

If PORT DIRECTION = INPUT: the following modes are available:

- **NORMAL:** the DMX Port receives the DMX-signal and sends it to the selected Art-Net or sACN universe in the "Universe Number" section.
5. **Frame Rate:** When the port direction is set to output you can define the number of DMX frames sent per second. The default setting is: 40 frames/second. But you can also select: 10, 15, 20, 25, 30 or 35 fr/second.
6. **Universe Number:** The used universe. **Note.** on some consoles like MA the universe 0 on this device corresponds to the universe 1 on the MA.
7. **RDM filter:** turn RDM on or off.
8. **No DMX behavior:** when no new DMX-signal is available for 4s, the output can be set to Freeze or Blackout.
Note: Use Blackout if effects like flamethrowers are connected.

PRESET PAGE

Number	Name	Color	Port 1	Port 2	Port 3	Port 4
1	Art-Net to DMX universe 1-4	Green	Green	Green	Green	Green
2	Art-Net to DMX universe 5-8	Blue	Green	Green	Green	Green
3	DMX to Art-Net universe 1-4	Red	Blue	Blue	Blue	Blue
4	DMX to Art-Net universe 5-8	Cyan	Blue	Blue	Blue	Blue
5	DMX splitter	Magenta	Blue	Green	Green	Green
6	Art-Net Clone	Yellow	Blue	Blue	Green	Green
7	Tomorrowland	Purple	Green	Blue	Red	Green

Legend :
 Input: Blue dot
 Output: Green dot
 Disabled: Red dot

Buttons: Load, Create, Remove

Figure 5. Preset page

With the 3 buttons, located at the bottom right of the preset page, presets can be loaded, created or deleted. For each preset you can see the direction of the port and the color of the status led. Select one of the presets and press the Load to load it. You can also use the FUNCTION-button (2) on the front panel to select a preset. These are the most common **factory standard presets** in the node:

1. **Art-Net to DMX universe 1-4 (green):** convert universe 1-4 from Art-Net to DMX.
2. **Art-Net to DMX universe 5-8 (blue):** convert universe 5-8 from Art-Net to DMX.
3. **DMX to Art-Net universe 1-4 (red):** convert universe 1-4 from DMX to Art-Net.
4. **DMX to Art-Net universe 5-8 (cyan):** convert universe 5-8 from DMX to Art-Net.
5. **DMX splitter (magenta):** Use port 1 as a DMX input and ports 2 to 4 as DMX output.
6. **Art-Net clone (yellow):** Convert 2 DMX inputs (port 1 and 2) into 2 separated Art-Net outputs and duplicate them on ports 3 and 4.
7. **Tomorrowland (purple):** This is a custom preset.

Press the create button to save the current config of the device into a preset. A pop-up window is shown where you can enter a name for the preset and select a color for the status led. You can add up to 5 custom presets.

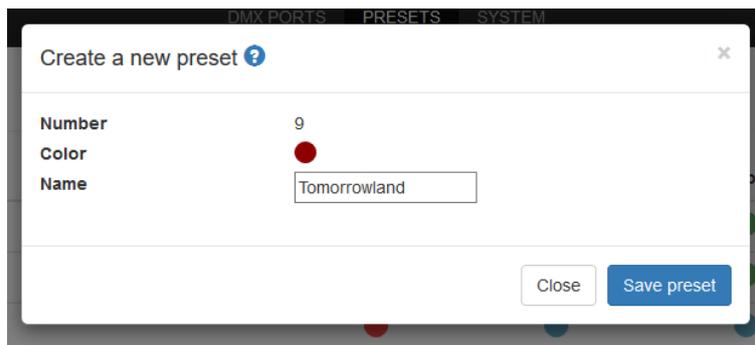


Figure 6. Create preset button

The remove button can only be used to delete custom presets.

SYSTEM PAGE

On the system page you can change a number of parameters, such as the device's LED and IP settings, and update the internal software.

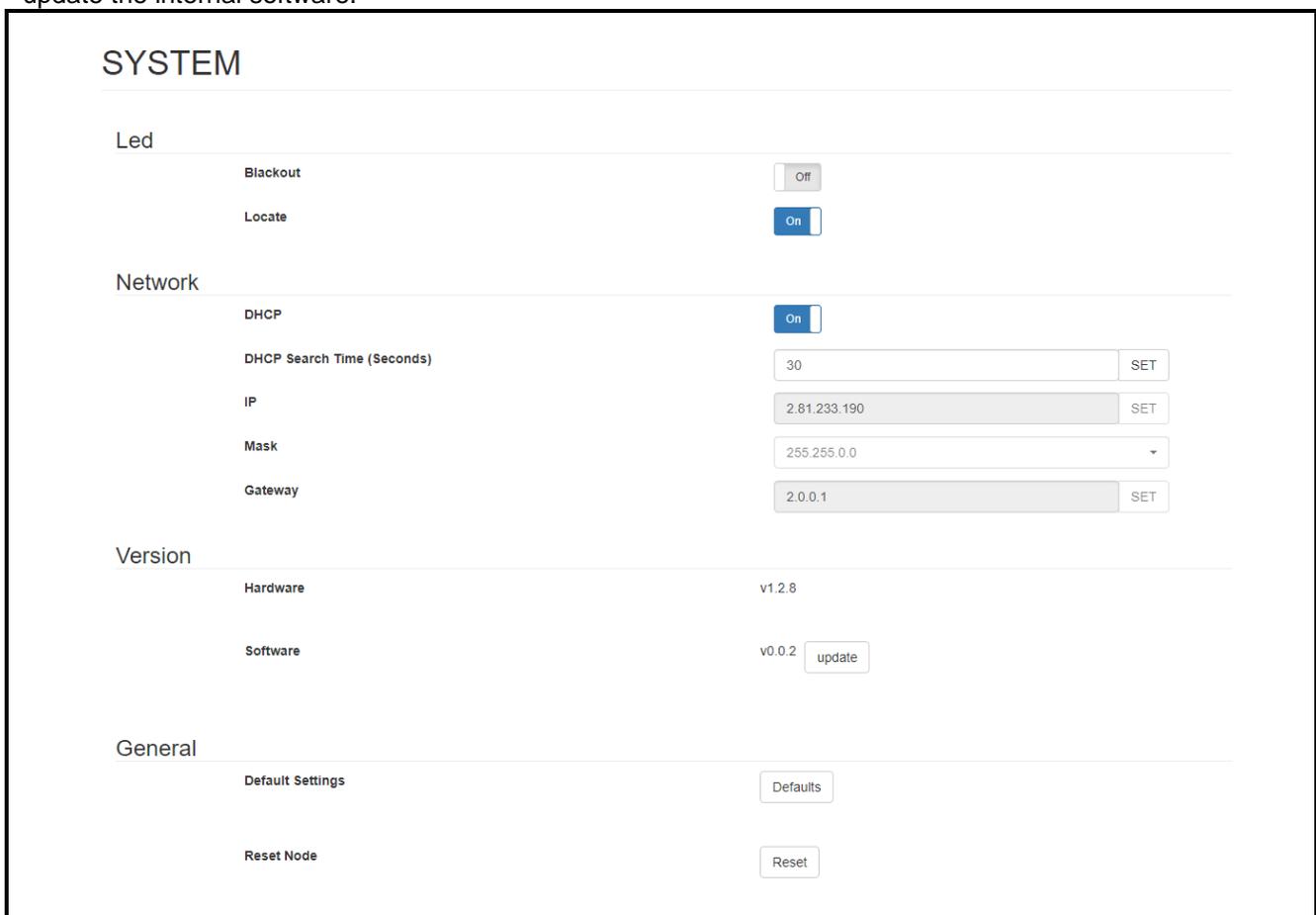


Figure 7. Overview off the system page.

1. **LED**
 - **Blackout** Used to switch all LEDs on the unit off so the node becomes invisible in the truss.
 - **Locate** If pressed the status LED on the BT-NODE24 starts flashing white to easily locate it in the truss.
2. **Network** Under the network tab you can turn DHCP on/off or adapt the static IP address. The DHCP search time on start-up can be changed to allow a slow starting Access Point to send a DHCP IP-address before the node uses a static IP-address.
3. **Version** Shows the hardware version and the software version. Press the update button to start a software update.
4. **General** Restore the default parameters and reset / restart the device.

MERGING

To use the BT-NODE24 as a DMX merger we need two different sources. You must configure an output to merge the signal of the two sources. The output merging option can be **LTP** (Last Takes Precedence) or **HTP** (Highest Takes Precedence). The merging function on the BT-NODE24 is different from that on our BT-NODE28. BT-NODE24 uses "IP merging" instead of "Universe merging" on our BT-NODE28. Meaning the BT-NODE24 will merge packets that have the same universe but a different source IP address. Hence the setup is easier and better for back-up consoles:

1. Select **LTP** or **HTP** merge on one of the ports.
2. Connect 2 consoles on the network of the node.
3. Send on both consoles the same universe (**note: be careful with universe selection on MA, universe 0 on this device correspondents to the universe 1 on MA**).
4. The node checks the source IP address of both consoles and merges the universe automatically.

Merging between Art-Net + DMX or DMX + DMX is also possible. Configure one port as input and use the same universe number as the configured output port.

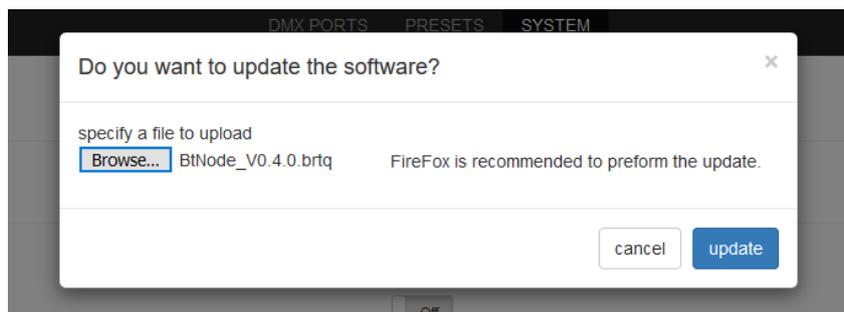
Note: Priority merging with sACN is also supported. Set the output port as "SINGLE" to allow priority merging.

SOFTWARE UPDATE

To update the software a ".brtq" file is needed. This file can be downloaded from the BT-NODE24 product page on the BRITEQ website.

Follow these steps:

1. Go to the IP address of the device. (*Note: Firefox is recommended for the update*)
2. Press the update button in the system menu.
3. A pop-up window will be shown:



4. Select the new ".brtq" file and press update.
5. The progression bar will show the progress while sending the software
6. When the progression bar is full the status led blinks in white color to indicate that the device is installing the software. This can take up to 20s.
7. When the status led turns dark the device reboots and starts the new update with "DHCP on" as default.
8. In the system view double check if the software version is higher than before the update.

LOAD DEFAULT SETTINGS

When the device is rented out, it can be quickly restored to its factory values. All default values are reloaded, and any custom presets are deleted.

Simply follow these steps:

1. Turn off the BT-NODE24
2. Press and hold the FUNCTION-button (2).
3. Turn on the BT-NODE24.
4. The status led lights up in red color.
5. Release the FUNCTION-button and wait until the led turns dark.
6. Default settings are now loaded.

Note: all ports are off and DHCP is switched on.

LOAD SAFE MODE

When a firmware update fails and the device is not working anymore, you can load new firmware in the safe mode:

1. Turn off the BT-NODE24.
2. Press the FUNCTION-button (2) while turning on the BT-NODE24.
3. The status led turns red.
4. Release the FUNCTION-button.
5. Press the FUNCTION-button again: the status led now turns yellow.
6. Press until the status led turns off.
7. Connect to one of the Ethernet ports.
8. It can take up to 15s before a connection is established.
9. Go to the IP address <http://2.1.2.3>.

Notes: for this update Google Chrome browser is recommended.
DHCP and NFC are not supported in the safe mode.

10. Load a new .brtq file.

TROUBLESHOOTING

DEVICE KEEPS RESETTING OR IS NOT STARTING

If the device resets in a loop or if it does not start you can try to update the firmware. If you cannot access the web page: use the safe mode. If the LOAD SAFE MODE is not working either, please contact your local dealer.

I CAN'T REACH THE WEB INTERFACE

Check if the link and/or activity led are on. If so, make sure the IP range of the BT-NODE24 is the same as on your computer or console. Try to ping the BT-NODE24 with a dedicated application, such as a DOS session on Windows, or a terminal session on MAC. If this is not working, try to update the device in the LOAD SAFE MODE or contact your local dealer.

THE STATUS LED IS FLASHING RED GREEN BLUE

This means that the device is searching for a DHCP-server. By default this takes 30s, but the time can be adjusted on the system page (web page). You can also choose to turn DHCP off and skip the search at start-up.

OVERHEAD RIGGING

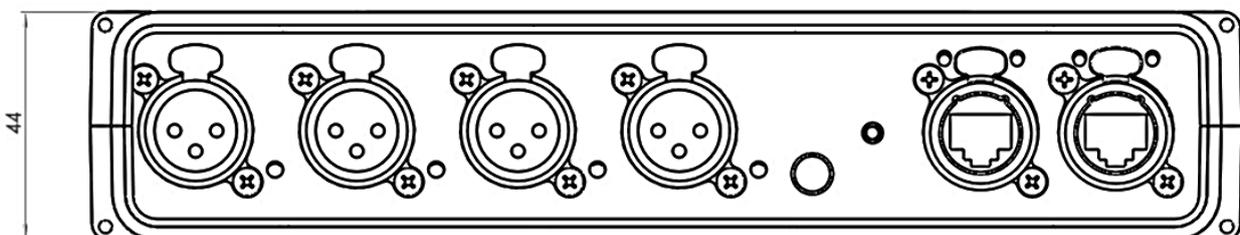
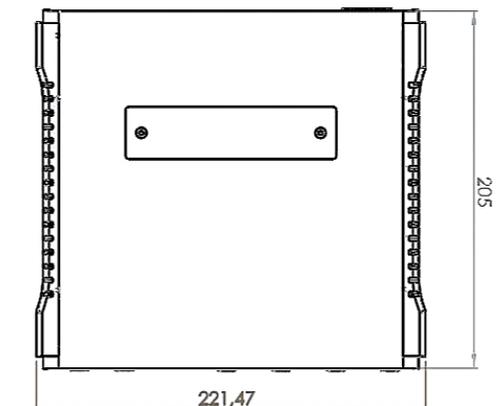
- **Important:** The installation must be carried out by qualified service personal only. Improper installation can result in serious injuries and/or damage to property. Overhead rigging requires extensive experience! Working load limits should be respected, certified installation materials should be used, the installed device should be inspected regularly for safety.
- Make sure the area below the installation place is free from unwanted persons during rigging, de-rigging and servicing.
- Locate the fixture in a well ventilated spot, far away from any flammable materials and/or liquids. The fixture must be fixed **at least 50cm** from surrounding walls.
- The device should be installed out of reach of people and outside areas where persons may walk by or be seated.
- Before rigging make sure that the installation area can hold a minimum point load of 10times the device's weight.
- Always use a certified safety cable that can hold 12times the weight of the device when installing the unit. This secondary safety attachment should be installed in a way that no part of the installation can drop more than 20cm if the main attachment fails.
- The device should be well fixed; a free-swinging mounting is dangerous and may not be considered!
- Don't cover any ventilation openings as this may result in overheating.
- The operator has to make sure that the safety-relating and machine-technical installations are approved by an expert before using them for the first time. The installations should be inspected every year by a skilled person to be sure that safety is still optimal.



SPECIFICATIONS

This unit is radio-interference suppressed. This product meets the requirements of the current European and national guidelines. Conformity has been established and the relevant statements and documents have been deposited by the manufacturer.

Mains Input:	AC 100-240V, 50/60Hz
Power consumption:	7 Watt
Power connection:	Neutrik TRUE-1 100V-240V 50/60Hz
PoE (Power over Ethernet):	PoE class 0 input. 36-57V
DMX connections:	4x 3pin-XLR or 5pin-XLR female
Ethernet connections:	2x Neutrik RJ45 Ethercon (Gigabit)
Size:	222 x 44 x 205 mm (19" / 1U)
Weight:	1.25 kg



All information is subject to change without prior notice

You can download the latest version of this user manual on our website: www.briteq-lighting.com



MAILING LIST

EN: Subscribe today to our mailing list for the latest product news!

FR: Inscrivez-vous à notre liste de distribution si vous souhaitez suivre l'actualité de nos produits!

NL: Abonneer je vandaag nog op onze mailinglijst en ontvang ons laatste product nieuws!

DE: Abonnieren Sie unseren Newsletter und erhalten Sie aktuelle Produktinformationen!

ES: Suscríbete hoy a nuestra lista de correo para recibir las últimas noticias!

PT: Inscreva-se hoje na nossa mailing list para estar a par das últimas notícias!

WWW.BRITEQ-LIGHTING.COM

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