



TRAXON | e:cue
MEMBER OF PROSPERITY GROUP



AM356970031

e:cue SYMPL bridge Node

Information for Use

Read the Information for Use and the Safety Instructions carefully. Subject to modification without prior notice.

Typographical and other errors do not justify any claim for damages. Modification of the product is prohibited.

This manual is designed for electricians, system administrators, and product users.

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1 Security instructions

Please read and follow the safety instructions, provided in a separate manual, carefully. Make sure that the environmental, mounting, and installation prerequisites are met. This manual should be kept at a safe place and in reach of the device.

1.1 Symbols



The exclamation mark warns about possible damage of the device itself, to connected devices, and to the user.



The information symbol gives general hints and informs about handling and procedures for use of the device.

1.2 General security instructions



- Connect cables and data only when the device is powered down.
- Ground the Ethernet and DMX connection cables for outdoor installations (optional for indoor only). Connect the SYMPL bridge Node to Protective Earth when at least one connected cable runs outdoor.
- The device must be supplied by a separate certified SELV Class 2 power supply.



- If safety instructions are missing, please contact Traxon e:cue to receive a new copy.

2 General device description

e:cue SYMPL Nodes are a system of interfaces for e:cue SYMPHOLIGHT only. They provide various connection types like DMX/RDM, DALI, digital inputs and outputs etc. SYMPL Nodes always operate in online mode, as a device interface for SYMPHOLIGHT. All interactions are initiated and controlled by SYMPHOLIGHT. Connections between servers, Cores and Nodes are always made with e:net via Ethernet.

The SYMPL bridge Node is an Art-Net / e:net / sACN to e:pix / DMX interface. It comes with 8 x DMX / e:pix universes over screw terminal plugs.

The SYMPL bridge Node is designed for the control of medium to large size installations with sACN, Art-Net and e:net. Switch between two input sources on the fly. The SYMPL bridge Node makes it possible to run up to 4096 DMX channels (= 1360 RGB pixels, 170 pxl/universe) via DMX universes and up to 16,384 DMX channels (= 5456 RGB pixels, 682 pxl/universe) via e:pix universes. The SYMPL bridge Node supports up to 32 sACN / Art-Net universes.

With an extended operating temperature of -40 ... 70°C (max 1 hour/day; continuous operation at max. 60 °C) the SYMPL bridge Node is suited for projects in tough outdoor environments. In addition to embedded temperature and humidity sensors whose data is readable in SYMPHOLIGHT, a backup on data loss and test modes add to the features of the SYMPL Node.

The SYMPL Node is powered by an external power supply or via Power-over-Ethernet. It is easily mounted on standard 35 mm DIN rails, or with a key hole in the housing base on walls or



on any stable vertical surface.

-
- To operate SYMPL Nodes a SYMPHOLIGHT version 2.0 or higher is mandatory. Earlier versions do not support the SYMPL Nodes. SYMPL Nodes are not supported by the e:cue Lighting Application Suite.
 - e:cue SYMPL Nodes are not hot-pluggable.

2.1 Delivery content

Delivery content of the e:cue SYMPL bridge Node - Product number AM356970031

- 1. SYMPL bridge Node
- 2. Safety instructions
- 3. Welcome note (English)

2.2 Connectors and Interfaces

View from top:

1

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DMX output 1 ... 8 (GND, DMX-, DMX+ left to right)

DMX / e:pix status LEDs

Test / Error LED

Ethernet LED (LAN activity)

Status LED (Device status)

Identify button

Test button

Protective Earth

Power supply (Vcc+, Vcc- left to right)

Ethernet

DIN rail handle

2.3 User interface: LEDs

The SYMPL bridge Node has 11 LEDs on the front panel. The 11 LEDs show the basic states of the SYMPL bridge Node.

LEDs

Status	On: If constantly on, the device is online. Server application is in operation. Blinking: If blinking in one second intervals, the device is offline, no connection to a SYMPHOLIGHT server or Core is available. If blinking more rapidly, the device is in bootloader mode.
Ethernet	Off: no link available. On: link established. Blinking: Ethernet traffic.
Test / Error	Off: no error detected. Short-short-long sequence: Test mode active. On: If constantly lights in red, an error occurred. This can be an internal error or malfunction of the device, or an external error, e.g. a shortcut of interface connections or alien power supply. Switch the device off and on. If the error persists, check the wiring or contact OSRAM Service.
Status + Test / Error	The Status and Test / Error LED blink simultaneously to identify the SYMPL Node (enabled "Identify Interface Mode" in SYMPHOLIGHT).

DMX 1 ... 8	Orange: DMX data. White: e:pix data. Orange + White: port error.
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2.4 Identify button: Identification & Reset

The Identify button has four functions: to send an Identify message (A), to reset the Node (B), and to exit the error state (C). The Identify button additionally switches protocol during Test mode (D).

(A) Only available with e:net: A short press during operation in online mode sends an Identify message to the server. This helps to assign the Node in the Setup tab in SYMPHOLIGHT.

(B) The Identify button can also be used to reset the device to factory state or to stay in bootloader mode. With a reset you restore the password and device settings by using the Identify button. Please note that the device name is not reset:

- Keep the Identify button pressed while powering up, Status and Test / Error LEDs light up at first. Bootloader mode is signaled by a fast blinking Status LED. Release the button now. The device stays in bootloader mode to download a new firmware.
To exit the bootloader mode, short press the Identify button again.
- Press the Identify button during operation until Status and Test / Error LEDs blink alternating, then blink together. Releasing the button now resets the device to its factory settings. The password and network settings are reset to their default values. Please note that the device name cannot be reset.
- Keeping the button pressed further on, the device proceeds to normal operation. No changes apply.

(C) Short press the Identify button if an error occurs and you want to exit the error mode. The device will switch back to normal activity if the cause of error is eliminated. The Node might reboot.

(D) During test mode, single press the Identify button to switch between e:pix and DMX protocol in the test.

3 General remarks

3.1 Transport

Only transport the device in its original packaging. This protects the device from damage.

3.2 Unpacking

Only unpack the device at its installation location. To protect the device against condensation water, unpack it and wait until all moisture remaining in the device has evaporated. Condensation can occur when the device is moved from a cold to a warm location. Keep the packaging for use in case of further transport. Inspect all parts for completeness regarding chapter "2.1 Delivery content" (page 04). If there is apparent damage to the device or parts are missing from the delivery scope, please contact the Traxon e:cue support service.

3.3 Warranty regulations

Depending on the product, warranty regulations are of different duration. The warranty time is usually noted in the quote and in the order confirmation. See www.traxon-ecue.com/terms-and-conditions for details. Legal warranty regulations apply in any case.

3.4 Maintenance and Repair

This device requires no maintenance.



- Before dismounting, appropriate measures must be taken to protect the respective components against damage caused by electrostatic discharge (ESD protection).
- Do not try to repair the device. Return it to your Traxon e:cue distributor for replacement or repair.

To update the firmware see „8 Firmware Update“ on page 14.

3.5 Disposal



Batteries and technical appliances must not be disposed of with domestic waste, but should be handed in at the appropriate collection and disposal points.

The proper disposal of packing materials and of the device is the responsibility of the respective user and for his account; in all other matters, the retrieval obligation for packing materials and the device is subject to the statutory regulations.

3.6 Support

In case of technical problems or questions regarding installation and repair please contact:

Traxon Technologies Europe GmbH
Customer Service
Karl-Schurz-Str. 38
33100 Paderborn, Germany
+49 (5251) 54648-0
support@ecue.com

4 Installation

The installation of the SYMPL bridge Node consists of mounting the device, connections to power supply, to Ethernet, and to the DMX (e:pix) devices.

The sequence of cabling is not defined. Supply the device with power after all cabling is completed; it starts booting.



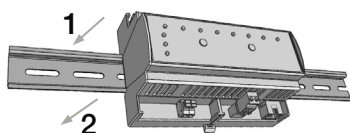
- Connect cables and data only when the device is powered down.

4.1 Installation conditions

Installation position	Terminals on top and bottom
Horizontal spacing	On both sides 18 mm
Minimum vertical rail grid spacing	115 mm (90 + 25 mm) (excluding conduit)
Recommended vertical rail grid spacing	160 mm (with 40 mm conduit)

4.2 Mounting process

The SYMPL bridge Node is designed to mount onto a 35mm DIN rail (EN 60715) in a horizontal position.



1. Clip the device to the rail from top.

2. Apply gentle pressure to the top front to snap it in place. The device has been mounted successfully.

You can also mount the device on any flat surface. Use a 3 to 3.5mm screw

for the hanger hole.

For mechanical stability, mounting on a rail is recommended.

4.3 Ethernet connection

The pin-assignment of the Ethernet port corresponds to RJ45 standards. You can use every common Ethernet component, like cable, splitters, and switches. Connect the SYMPL bridge Node at the designated Ethernet interface with a patch cable (RJ45, CAT5).



- Ground the Ethernet cable for outdoor installations (optional for indoor only).



- Never connect more than one SYMPL bridge Node in factory state to a network. The identical IP addresses will conflict and disturb proper communication.

4.4 DMX connection

The SYMPL bridge Node can control eight DMX / e:pix universes with its eight DMX ports. Connect DMX / e:pix devices to the SYMPL Node using 3-pin terminal plugs at the DMX interface of the SYMPL Node.

The appropriate pin assignment is defined as follows:

From left to right: GND, DMX-, DMX+

It is recommended to use twisted pair cabling.

Use shielded cables for outdoor installations.



- Ground the DMX connection cable for outdoor installations (optional for indoor only). Ground each cable separately.

4.5 Power supply

The e:cue SYMPL bridge Node can be powered by an external power supply or via Power-over-Ethernet.

PoE:

For PoE, simply connect an Ethernet connection from a power sourcing device.

External power supply:

Connect the SYMPL bridge Node to a certified NEC Class 2 24 V DC power supply unit. Present power supply equates to the status “On” or running of the SYMPL Node.

To connect the device to a power supply unit, use the provided 2-pole terminal and lay the wires as stated on the front label. The voltage assignment is left V+ and right V-.

Turn the power on when all cables are connected to the SYMPL bridge Node. The device starts booting. During the booting process all DMX LEDs turn on consecutively. The device has finished booting and is in operation when the LED Status is flashing.



- The SYMPL bridge Node is not suited for powering over a DC power supply network. Use a separate certified SELV Class 2 power supply unit in the control cabinet for supplying 24 V DC to the SYMPL bridge Node.

4.6 Protective Earth

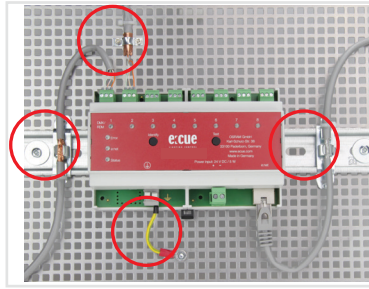


- Connect the SYMPL bridge Node's Protective Earth to earth when at least one connected cable runs outdoors.



Grounding of the SYMPL bridge Node

Use Protective Earth where applicable.
Ground the DMX connection cable and the Ethernet cable.
Ground each cable separately.



5 Network configuration

The network properties of the device are preconfigured. The successful installation of the power supply is required for changing the network configuration. You can either adjust the network settings with SYMPHOLIGHT or using the web interface of the device.

5.1 Default network properties

The SYMPL bridge Node has as factory setting the default IP address 192.168.123.1.

Subnet mask: 255.255.255.0.

DHCP is disabled by default.

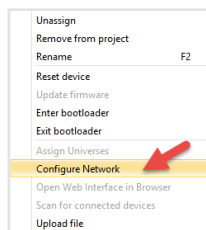
Login credentials for the web interface of the SYMPL bridge Node:

The default password is: **ecue**

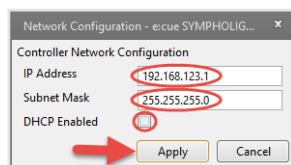
To change the network configuration use either SYMPHOLIGHT or the web interface of the device:

5.2 Network configuration with SYMPHOLIGHT

1. Open the context menu of the SYMPL bridge Node in the Setup tab of SYMPHOLIGHT by a right-click on the device.
2. Select "Configure Network":



3. Define the IP address, the subnet mask and the DHCP settings to your needs:



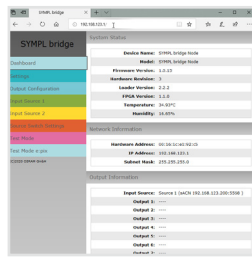
4. Click "Apply" to submit the changes.

The network configuration of the device is completed.

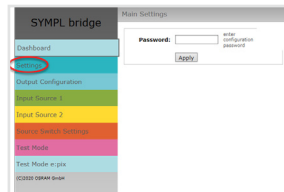
5.3 Network configuration with the web interface

1. Open a common web browser on a connected PC. Enter the SYMPL bridge Node's IP address into the address bar:
e.g. <http://192.168.123.1>.

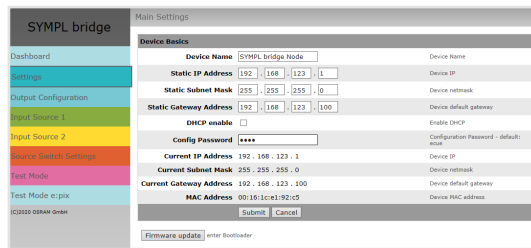
The web interface of the device is displayed:



2. On the left side, select “Settings” and enter the default password **ecue**:



3. Click “Apply”. The Settings page is displayed:



4. Define the network settings at “Device Basics” to your needs. You can also change the password for entry to the web interfaces of the device here. Entering an empty value disables the password protection.

5. Click “Submit” to apply the settings.

The network configuration of the device is completed.

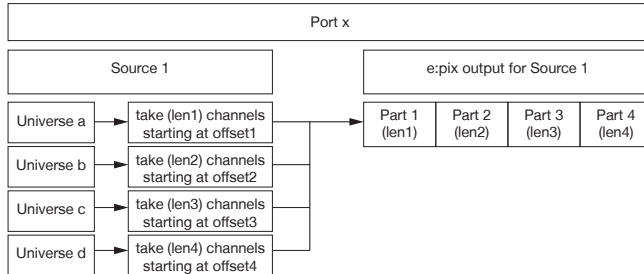


- The employment of a discrete network is recommended.
- Note down all employed and, if applicable, reserved IP addresses. Keep the information for future network configurations.
- You can change the login password to the SYMPL bridge Node's configuration page and its device name at “Settings” page. Do not forget the new password.
- The SYMPL bridge Node should be only accessed from one browser tab at a time.
In case there is no response please wait a while or reopen the browser to end pending connections.
- Please note that after changing the IP address, the device currently will lose its connection and needs to be reconnected under the new IP address.

6 Output configuration

Access the web interface to first configure the data output of each port and to secondly map the data input of two sources. Then define a third source that determines the switching between the two input sources.

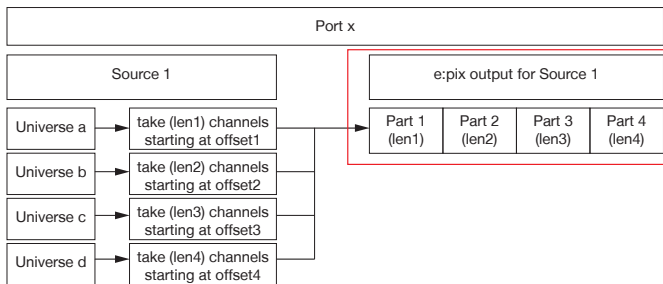
For each of the eight ports, the data output is composed of up to 4 parts of data from up to 4 input universes:



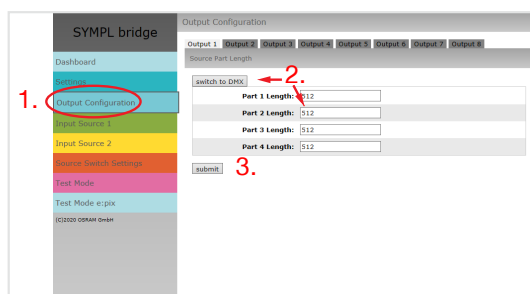
To access the web interface, open a common web browser on a connected PC. Enter the SYMPL bridge Node's IP address into the address bar:
e.g. <http://192.168.123.1>.

6.1 Ports configuration

The first step of the output configuration is to configure the channel size of the eight output ports. The channel size is equivalent to the channel count of the connected fixtures to each port:



1. Open the ports configuration page by selecting "Output Configuration" on the left side of the web interface of the SYMPL bridge Node:



2. Select the type of protocol the connected fixtures support. You can address up to 4 x 512 DMX channels (=2048) by one e:pix port. Map the connected fixture address consumption to get a seamless e:pix universe: for each port, take the amount of fixture consumed channels (length) of four DMX universes (1 ... 512 for part 1 to part 4). If not the full e:pix universe (the sum of all four parts is smaller than 2048) is used, remaining parts can be set to 0 in order to avoid possible waiting time for complete data input.

Click the "switch to DMX" button to change the protocol type to the DMX512 standard. Only one length of maximum 512 channels will be available for each output port.

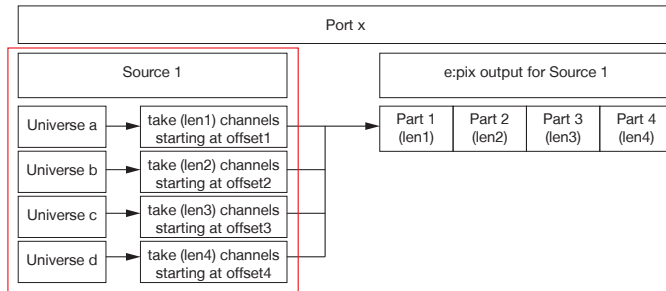
3. After configuring all ports, click the "submit" button to save the configuration.

6.2 Data mapping (Sources configuration)

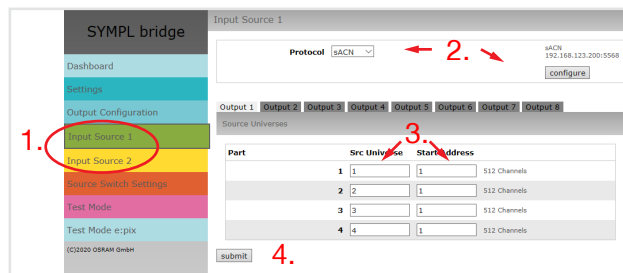
The second step of the output configuration is to configure the data input. The SYMPL bridge Node provides two data input sources. For each source, configure first its protocol and parameters.

Protocol	Source	Port Number	Data mapping
sACN	1, 2	5568	yes
Art-Net	1, 2	6454	yes
e:net	1	-	no

Then map the input data to the previously configured output ports:



1. Open the sources' configuration pages by selecting "Input Source 1" and "Input Source 2" respectively on the left side of the web interface of the SYMPL bridge Node:



Please note that the IP addresses of the two sources must be different if the same protocol is used for both sources. You can have an identical IP address when two different protocols are used.

Repeat the following steps for each source:

2. At the top, select a protocol type (Art-Net, e:net, sACN) from the drop down menu and click the "configure" button. In the protocol configuration, configure the source protocol parameters e.g. the IP address accordingly. Click the "submit" button to save the protocol configuration.
3. For each output part with a length > 0 an input universe must be set ("Src Universe"). Enter the connected fixtures' universes.

Additionally an offset within this universe can be specified ("Start Address").

It is possible to map the same universe to multiple ports and parts. This means you can duplicate content using the SYMPL bridge Node.

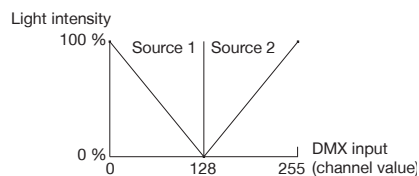
4. After configuring all ports, click the "submit" button to save the configuration.



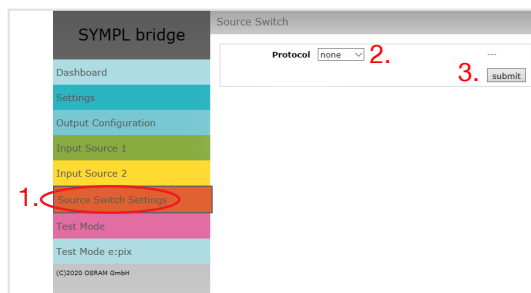
- For sACN: In case of optimized frames and uncertainty that every frame is sent, use the “timeout” parameter. Recommendation: timeout should be less than half the frame rate ($<1/2$ FR), e.g. 11ms for 30 FPS. For more details see “13 Timeout function” (page 17).
- Mapping DMX to e:pix: Please note that renaming universes in SYMPHOLIGHT is not displayed in the web interface of the SYMPL bridge Node. SYMPHOLIGHT indexes universes in the order in which they were added to the project. The SYMPL bridge Node just displays the index number, preceded by letter “U”.

6.3 Source switch

The third step of the output configuration is to configure the source that defines the switching between Source 1 and Source 2. The value of the switch source will be taken to do a fade out / fade in between the two input sources:



1. Open the source switch configuration page by selecting “Source Switch Settings” on the left side of the web interface of the SYMPL bridge Node:



2. Select a protocol type (Input 1, Input 2, e:net, Art-Net, or sACN) from the drop down menu. Enter the IP address of the switch source and define the universe and channel that is to determine the switching between Source 1 and Source 2. For sACN you can choose between Multicast and Unicast transmission by selecting the “Multicast” checkbox.
3. Click the “submit” button to save the configuration.



For sACN Multicast make sure you have a switch that is sACN / Art-Net conform. Please note that for sACN Multicast you need:

- one switch that is configured as an IGMP Querier;
- all switches to have IGMP snooping enabled.

7 Test mode

- SYMPHOLIGHT v5.0 or higher needed-

The SYMPL bridge Node provides a Test mode for the connected DMX devices. The Test mode is designed for DMX luminaires. There are two kinds: using the Test button and using the web interface of the SYMPL bridge Node.

Please note that the Test mode overwrites all other DMX output like running shows for the time of testing. A running show is reverted to after exiting the Test mode.

The Test mode is indicated by flickering DMX LED(s) and the blinking Test / Error LED.

7.1 Test mode via Test button

The Test button allows to test the connected DMX devices directly with the SYMPL bridge Node.

- Keep the Test button pressed for about 5 seconds until the Test / Error LED flashes in the short-short-long sequence and the DMX 1 LED lights constantly. Releasing the button now starts the Test mode at the DMX port 1 with blinking lights of all channels.
- Short-press the Test button each time to switch between the following test patterns:
 - DMX port 2: All channels blink.
 - DMX port 3: All channels blink.
 - DMX port 4: All channels blink.
 - DMX port 5: All channels blink.
 - DMX port 6: All channels blink.
 - DMX port 7: All channels blink.
 - DMX port 8: All channels blink.
 - All ports: All channels blink.
 - All ports: All channels to 100%.
 - All ports: All channels to 0%.
 - Repetition, beginning from the test pattern for DMX port 1.
- To exit the Test mode at any time, keep the Test button pressed for 5 seconds. The device proceeds to normal operation. The DMX LEDs no longer flicker and the Test / Error LED is off. The last test pattern will not be exited by the device.
- Press the Identify button to switch between DMX (orange port LEDs) and e:pix (white port LEDs) testing output.

7.2 Test mode via web interface

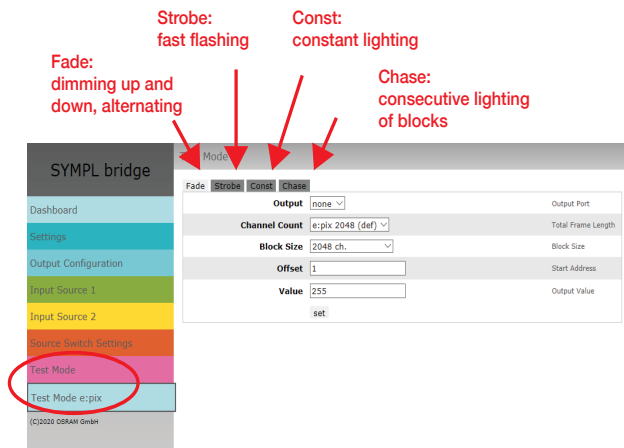
The web interface of the SYMPL bridge Node provides four different test patterns and allows to change their properties.

To access the web interface, open a common web browser on a connected PC. Enter the SYMPL bridge Node's IP address into the address bar:

e.g. <http://192.168.123.1>.

Open the Test mode page by selecting "TestMode" on the left side of the web interface of the SYMPL bridge Node:





Click a button to choose a test pattern. Define the properties:

Property	Description
Output	DMX ports to run the test on.
Channel Count	Total frame length. Editable in “TestMode e:pix” on SYMPL bridge Node only.
Block Size	Block size in which to step through the frame length in channel count.
Offset	Start address of the first test loop (first channel = 1).
Value	Luminance of the test output (0 - 255).
Step Time	Delay between steps. Manual: Press the Test button to move the block. Define the first channel at “Start Address”.


Click “set” to run the test and to apply changes in the test settings.

Exit the Test mode by leaving the Test mode page, e.g. go to “Dashboard” or double-pressing the Identify button.

8 Firmware Update

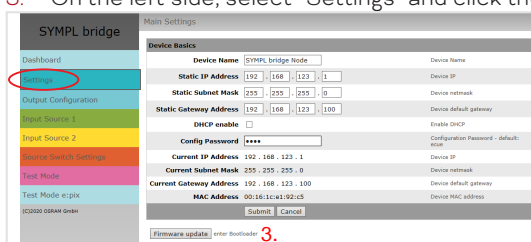
In case a new firmware version is available, you can either use SYMPHOLIGHT or the web interface of the SYMPL bridge Node to update the device.

Updating with SYMPHOLIGHT

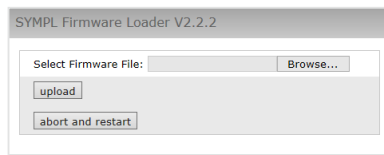
Use the usual update options in the Device Tree of the Setup tab in SYMPHOLIGHT: select “Update firmware” in the context menu of the SYMPL bridge Node or click the Update button  in the head toolbar.

Updating with web interface

- Save the new firmware file from www.ecue.com.
- To access the web interface, open a common web browser on a connected PC. Enter the SYMPL bridge Node's IP address into the address bar:
e.g. <http://192.168.123.1>.
- On the left side, select “Settings” and click the “Firmware update” button at the end of the page:



The device enters the bootloader mode and the firmware loader window is displayed:



4. Browse for the new firmware file and click “upload” to start the updating process. Wait until the process has finished to get back to normal operation. Acknowledge the firmware version and the Dashboard page appears.

The firmware update is completed.

To abort the firmware update, click “abort and restart”. Wait for the device to reboot.

9 Dismounting

Disconnect all attached cables. Dismount the e:cue SYMPL bridge Node from the rail by pulling the black DIN rail handle and unhitching the SYMPL Node. The dismounting is completed.



Before dismounting, appropriate measures must be taken to protect the respective components against damage caused by electrostatic discharge (ESD protection).

10 Product specifications

Product number	AM356970031
Dimensions (W x H x D)	143 x 92 x 62 mm/ 5.63 x 3.6 x 2.4 in (excl. fastening clip)
Weight	250 g / 0.55 lb
Power supply input	24 ... 48 V DC (terminal plug), cable cross section: 0.205 – 3.31 mm ² , reverse polarity protection or PoE IEEE 802.3af on RJ45
Power consumption	max. 8 W (incl. DMX termination)
Operating temperature	-40 ... 70 °C * / -4 ... 158 °F *
Storage temperature	-40 ... 70 °C / -4 ... 158 °F
Operating / storage humidity	0 ... 80% RH, non-condensing
Protection class	IP20
Electrical safety class	SELV
Housing	Self extinguishing blend PC/ABS UL E140692
Mounting	on 35 mm DIN rail (EN 60715), or with key hole on any stable vertical surface

Interface specifications

Interfaces	8 x DMX512 / 8 x e:pix isolated in pairs, surge protection, 3-pin terminal plug cable cross section: 0.081 – 1.31 mm ²
Interface specifications	$V_{DMXmax} / V_{DMXmin} = 4.6 \text{ V} / 0.8 \text{ V}$ Short circuit protected: $I_{SCmax} = 100 \text{ mA}$
Ethernet-Port	1 x e:net 10/100 Mbit/s RJ45, surge protection

Sensors, internal	Temperature -40 ... 120 °C (±0.2 °C) / -40 ... 248 °F (±0.36 °F) Humidity 0 ... 100% (±2%)
User interfaces	LEDs for Test / Error, Ethernet activity, device status, DMX status Identify button, Test button

*) 70 °C / 158 °F for max. 1 hour/day;
continuous operation at max. 60 °C / 140 °F.

11 Certifications



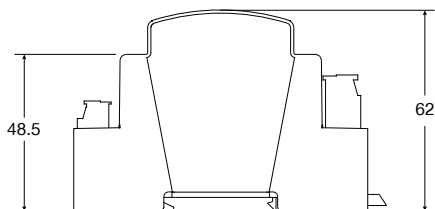
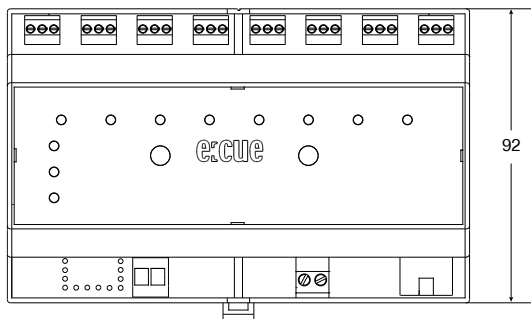
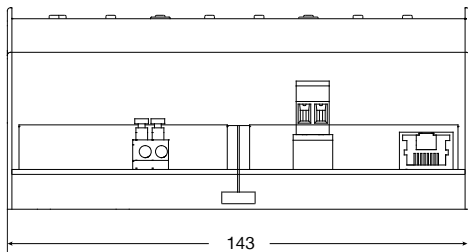
Intertek
4000805

Conforms to UL Std. 62368-1
Certified to CSA Std. C22.2 NO. 62368-1



12 Dimensions

All dimensions in mm



13 Timeout function

Within the source configuration, the configuration of the protocol parameters contains a timeout function. This function allows a self-controlled frame assembly to avoid sending incomplete frames.

Especially for sACN with enabled optimized frames, it is recommended to use the timeout function adhering the guideline: timeout should be less than half the frame rate ($<1/2 \text{ FR}$), e.g. 11ms for 30 FPS.

The timeout function works as follows:

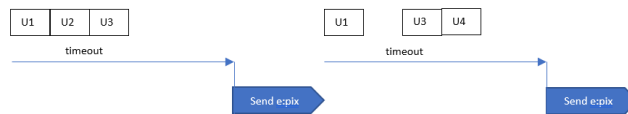
1. The first packet starts the timeout.
2. During the timeout duration all packets are collected.
3. After the timeout has elapsed, all collected packets are sent.
4. Incoming packets past this time spot are collected and sent after the next timeout has elapsed.

The following four scenarios result from the timeout configuration:

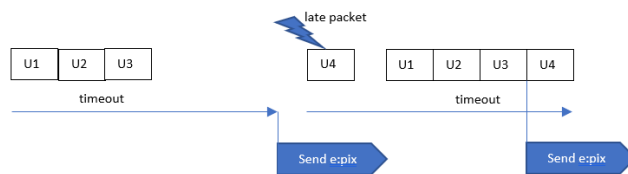
- Sending after all is received



- Sending after timeout



- Problem when packet is too late (here: one frame offset)



- Problem when timeout is too long (solution: $\text{timeout} = 0.5 \times \text{framerate}$)

