Description: User Manual GigaCore 26i.
REVISION: 20220812-REV 2.8.8

Luminex
NETWORK INTELLIGENCE

GigaCore 26i
USER MANUAL

GIGACORE PRODUCT FAMILY
GigaCore 26i

Thanks for choosing Luminex

MADE IN BELGIUM

General information

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

L’éclair avec une flèche à l’intérieur d’un triangle équilatéral est destiné à attirer l’attention de l’utilisateur sur la présence d’une « tension dangereuse » non isolée à l’intérieur de l’appareil, pouvant être suffisamment élevée pour constituer un risqué d’électrocution.

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

Le point d’exclamation à l’intérieur d’un triangle équilatéral est destiné à attire l’attention de l’utilisateur sur la présence d’instructions importantes sur l’emploi ou la maintenance (réparation) de l’appareil dans la documentation fournie.

CAUTION
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

AVERTISSEMENT
POUR RÉDUIRE LES RISQUES D’INCENDIE OU DE DÉCHARGE ÉLECTRIQUE, N’ EPOSEZ PAS CET APPAREIL À LA PLUIE OU À L’ HUMIDITÉ.

CAUTION
NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

AVERTISSEMENT
AUCUNE PIÈCE CONTENUE À L’ INTÉRIEUR NE PEUT ETRE RÉPARÉE PAR L’ UTILISATEUR, VEUILLEZ CONFIER TOUTE RÉPARATION À UN PERSONNEL QUALIFIÉ.

FCC Compliance Statement:
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received; including interference that may cause undesired operation.

IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Luminex Lighting Control Equipment nv may void your authority, granted by the FCC, to use the product.

This Equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Industry Canada compliance statement
This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

European Community Compliance Statement
This is a class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Disposal of Waste Equipment by users in the European Union
Information for Users on Collection and Disposal of Old Equipment.
This symbol on the products, packaging, and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.
For proper treatment, recovery, and recycling of old products, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC. By disposing of these products correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. For more information about collection and recycling of old products, please contact your local municipality, your waste disposal service, or the point of sale where you purchased the items.

[For business users in the European Union]
If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

[Information on Disposal in other Countries outside the European Union]
This symbol is only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

Warranty information

Limited warranty
Unless otherwise stated, your product is covered by a two (2) years parts and labour limited warranty. It is the owner's responsibility to furnish receipts or invoices for verification of purchase, date, and dealer or distributor. If purchase date cannot be provided, date of manufacture will be used to determine the warranty period.

Returning under warranty
Please contact your dealer when products need to return to Luminex for repair. Luminex can only accept returns accompanied by a valid RMA number issued by Luminex and requested by your dealer or distributor.
Any product returned to Luminex must be packaged in a suitable manner to ensure adequate protection of the parts. This package shall be clearly and prominently marked to indicate that the package contains returned product. All returned products shall contain a written explanation of the alleged problem or malfunction including the RMA number.

Freight
All shipping will be paid by the purchaser. Items under warranty shall have return shipping paid by the manufacturer only in the European Union. Under no circumstances will freight collect shipments be accepted.
Prepaid shipping does not include rush expediting such as air freight. Air freight can be sent customer collect in the European Union. Warranty is void if the product is misused, damaged, modified in any way, or for unauthorized repairs or parts.

Important safety instructions

BEFORE USING THIS PRODUCT, CAREFULLY READ THE APPLICABLE ITEMS OF THE FOLLOWING SAFETY INSTRUCTIONS:

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all intructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way such as:
  - Power-supply cable or plug is damaged.
  - Liquid has been spilled into the apparatus.
  - An object has fallen into the apparatus.
  - The unit has been exposed to rain or moisture.
  - The unit does not operate normally.
  - The unit was dropped or the chassis is damaged.
- Do not remove the top cover. Removal of the top cover will expose hazardous voltages. There are no user serviceable parts inside and removal may void warranty.
- To prevent your product from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of 50°C for the GigaCore 26i and 40°C for the GigaCore 26i with PoE.
- The equipment should be installed in an area that it is unlikely for children to have access to the equipment.
- The equipment must be installed and protected from rain and humidity.
- The equipment requires a building installation protection of maximum 25A or less.
- Apparatus with mains power connection must be earthed!

WARNING: Avoid electric shock and fire hazard! Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Caution: double pole/neutral fusing.

VENTILATION OPENINGS:

The system heat vents, if available, located on each side dissipate heat. Do not block these openings. Leave at least 12.7 centimeters of space at the rear and 5.08 centimeters of space at the sides of the switch for proper ventilation. Be reminded that without proper heat dissipation and air circulation, system components might overheat, which could lead to system failure or even severely damage components.

POWER CABLE:

Use only approved power cables. If you have not been provided with a power cable for your system or for any AC powered option intended for your system, purchase a power cable that is approved for use in your country. The power cable must be rated for the product and for the voltage and current marked on the product's electrical ratings label. The voltage and current rating of the cable should be greater than the ratings marked on the product.

DISCONNECT DEVICE:

The plug-IEC socket combination must be accessible at all times, because it serves as the main disconnecting device. Disconnect the power cord during installation of the device.

SAFETY CLASSIFICATION OF MAINS POWER INPUT:

- Backup power port:
  - 12V connections have a safety status EARTHED SELV.
  - 54V connections have a safety status UNEARTHED SELV.
- Mains input - IEC connection has a safety status of PRIMARY CIRCUIT.

SAFETY CLASSIFICATION OF TRAFFIC PORTS:

- Serial port has a safety status of EARTHED SELV.
- 10/100/1000 Base-T ports have a safety status of UNEARTHED SELV.

CAUTION!
RISK OF ELECTRIC SHOCK DO NOT OPEN

ATTENTION!
RISQUE DE CHOC ELECTRIC NE PAS OUVRIR

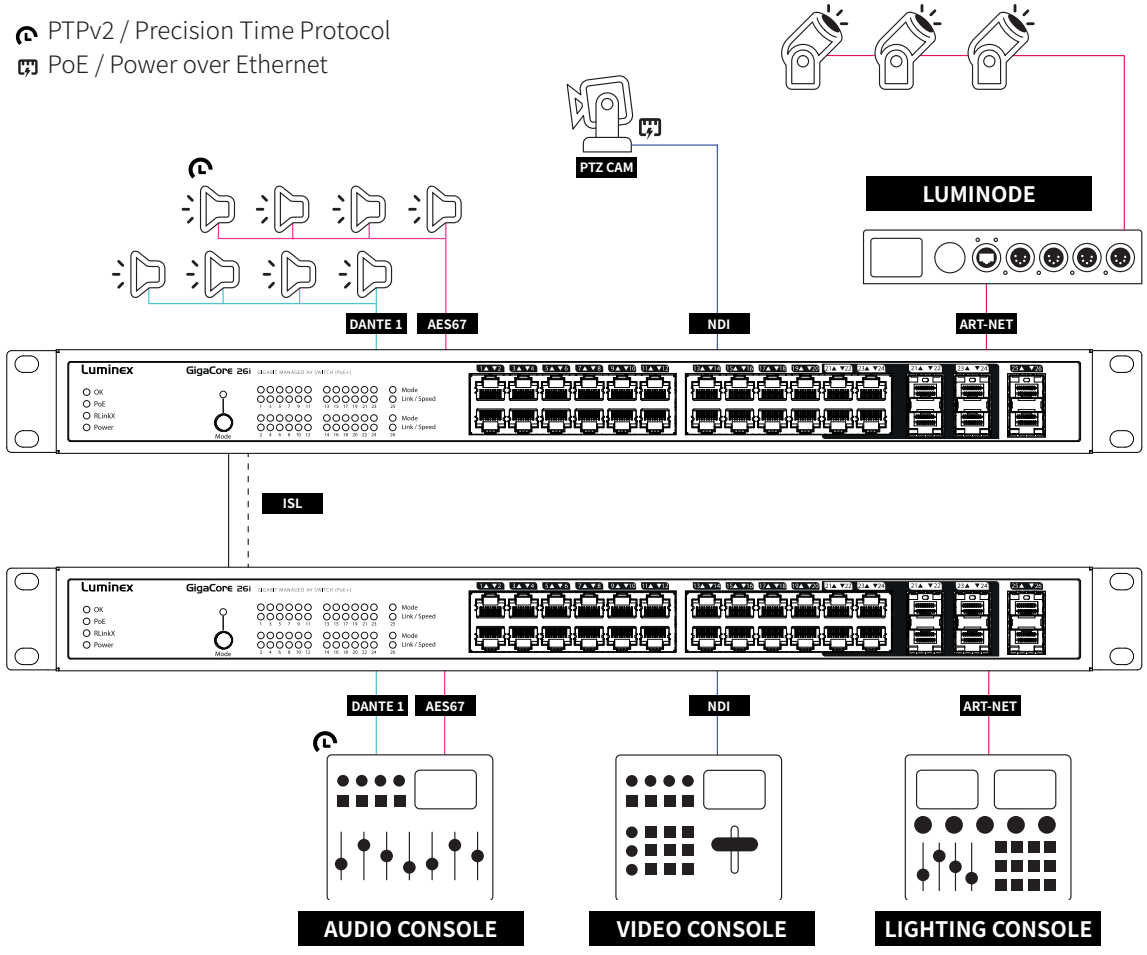
Table of contents

1. Applications

A few examples of applications where the GigaCore 26i can be used:

- Convention centers
- Architectural lighting
- Multimedia shows
- Schools
- Theme parks
- Theaters, operas
- Festivals, tours
- ....

Typical Applications:



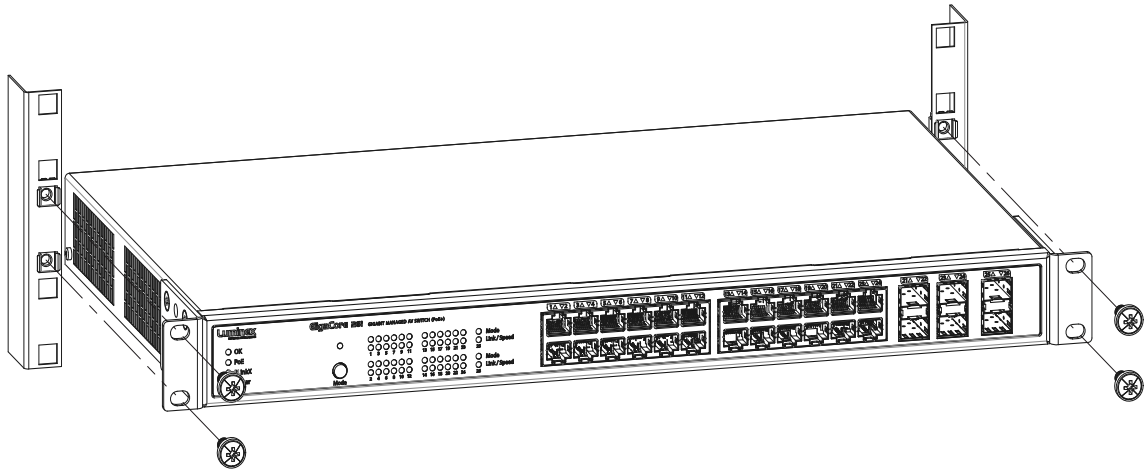
2. Installation

2.1 Mounting the device

GigaCore 26i is a device that can be rack mounted. Please read the following instructions to make sure the device is mounted and secured correctly.

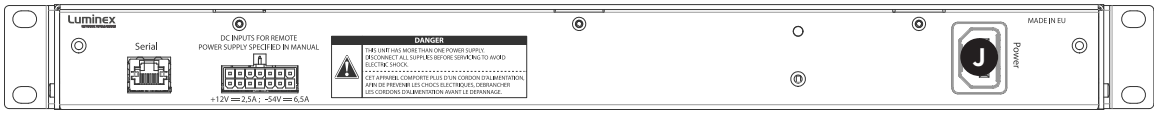
RACK MOUNT

In case you want to mount your GigaCore 26i and GigaCore 26i with PoE in a standard 19-inch rack, you need 4 rack screws to mount the device.



2.2 Power up the device

Power-up the device with a power cable with IEC connection (J) (please contact your local dealer if you do not have a suitable power cable at hand). The device will automatically switch on. To shut it down after use, just un-plug the power cable again.



The GigaCore 26i and GigaCore 26i with PoE requires standard AC power distribution from 100-240VAC, 50/60Hz. Current required depends on the model.

Please use an IEC plug compliant cable to power the device. Luminex recommends the use of a power cable fitted with a locking mechanism to ensure a reliable connection to the device.
When installing a new connector, please refer to the following wire colour code reference:

Wire*	Connection
Green/Yellow	AC Ground
Blue	AC Neutral
Brown	AC Line

* International (Harmonised) Standard

2.3 Description

2.3.1 Front panel

(A) Status LEDs
- **OK**: Indicates the general status of the switch.
- **PoE**: Indicates the status of the PoE functionality and the PoE supply (GigaCore 26i with PoE only).
- **RLinkX**: Indicates the RLinkX status.
- **Power**: Indicates the status of the power supply.

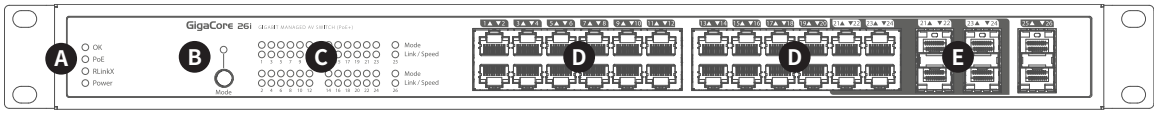
(B) Mode
- **Mode LED**: Indicates the selected state for the port Mode LEDs (see the “LED indicators” section in this manual for more details).
- **Mode button**: Use this button to browse through the different states for the port Mode LEDs.

(C) Port LEDs
- **26x Port Mode**: According to the selected state, the LED will show different colours.
- **26x Port Link/Speed**: Shows the current speed and link activity of a port.

(D) RJ45 Ports
- **24x RJ45** 10/100/1000Mbps port.

(E) SFP
- **6x SFP** cage for Mini-GBIC transceiver.

NOTE: PORT 21 TO 24 ARE DUAL MEDIA PORTS! RJ45 PORTS 21 TO 24 CAN’T BE USED AT THE SAME TIME AS SFP PORTS 21 TO 24. SFP PORTS 21 TO 24 HAVE PRIORITY OVER RJ45 PORT 21 TO 24.

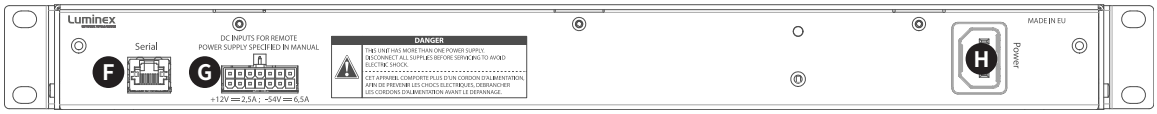


2.3.2 Rear panel

(F) Serial Port
- **1x RS232** console port on RJ45.

(G) RPSU Port
- **1x 14-pin Molex** connection for the optional Redundant Power Supply Unit (RPSU400 only).

(H) Power
- **1x IEC** inlet.



2.4 LED indicators

There are various LEDs on GigaCore 26i and GigaCore 26i with PoE. Here is a list of the LEDs, the possible colours, and the meaning of each colour:

Switch LED	Status	Meaning
OK (General status LED)	Green	All OK.
	Green flashing	Unit is writing to the flash. Do not disconnect power.
	Orange	Temperature warning.
	Red flashing	Temerature of Fan error.
	Red/Green flashing	The unit is flashing new firmware. Do not disconnect power.
PoE LED (GigaCore 26i with PoE only)	Green	Internal PoE supply OK and RPSU connected. PoE functionality OK.
	Orange	Internal PoE supply OK (no RPSU connected).
	Red flashing	PoE supply or PoE functionality error.
RLinkX LED	Green	RLinkX is active.
	Blue flashing	OOS occured on the switch.
Power LED	Green	Internal power supply OK and RPSU connected.
	Orange	Internal power supply OK (no RPSU connected).
	Red flashing	Power error.
Port LED	**Status**	**Meaning**
Link	Off	No link.
	Green	Gigabit connection.
	Orange	10/100Mbps connection.
	Flashing	Activity.

With the use of the mode button, the user can get all the necessary information immediately. Press the mode button to browse through the different states.

State	Mode LED	Port Mode LED	Meaning
Groups	White	Group colour	The LED colour indicates the group assignation of the port.
RLinkX	Blue	Blue	Indicates a redundant port.
		Red flashing	OOS occurred on that particular port.
MultiLinkX	Magenta	Magenta	MultiLinkX is enabled on this port.
		White	MultiLinkX is active on this port.
PoE	Yellow	Yellow	PoE is available on this port.
		Orange	Port is sourcing PoE to a device.
		Red	Error with PoE.
Dark mode	Off	Off	All port LEDs are switched off. Switch status LEDs remain available.

2.5 Connection to the web interface

- The GigaCore 26i IP address can be found at the rear of the unit.
- Set your computer with a compliant IP address (do not use the same IP address!).
- Connect your computer to the GigaCore with a network cable.
- Launch your favourite web browser.
- Type the IP address of the GigaCore in the address field followed by enter.
- Use admin in the user field and leave the password field blank.

PLEASE KEEP IN MIND THE WEB INTERFACE OF A SWITCH CAN ONLY BE REACHED THROUGH A PORT ASSIGNED IN THE MANAGEMENT GROUP (FROM THE SWITCH YOU'RE CONNECTED TO, OR FROM ANOTHER SWITCH THROUGH AN ISL PORT). YOU NEED AT LEAST ONE PORT ASSIGNED TO THE MANAGEMENT GROUP IN YOUR ENTIRE NETWORK TO REACH THE WEB INTERFACE OF ALL YOUR GIGACORE SWITCHES.

FACTORY DEFAULT ALL PORTS ARE ASSIGNED TO THE MANAGEMENT GROUP.

2.6 Reset

Sometimes it can come in handy to reset the device. The following methods are available to reset the GigaCore 26i:

RESET THROUGH THE FRONT PANEL

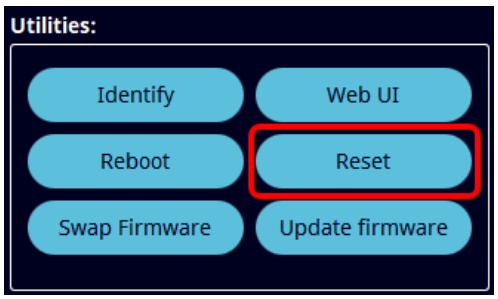
- Press and hold the mode button for 5 seconds.
- When the four status LEDs are flashing red, release the mode button.
- The device will reset to factory default settings.

RESET THROUGH ARANEO

Araneo is available for Windows and MacOS and can be found in the download section of our website: https://www.luminex.be/download-araneo/.

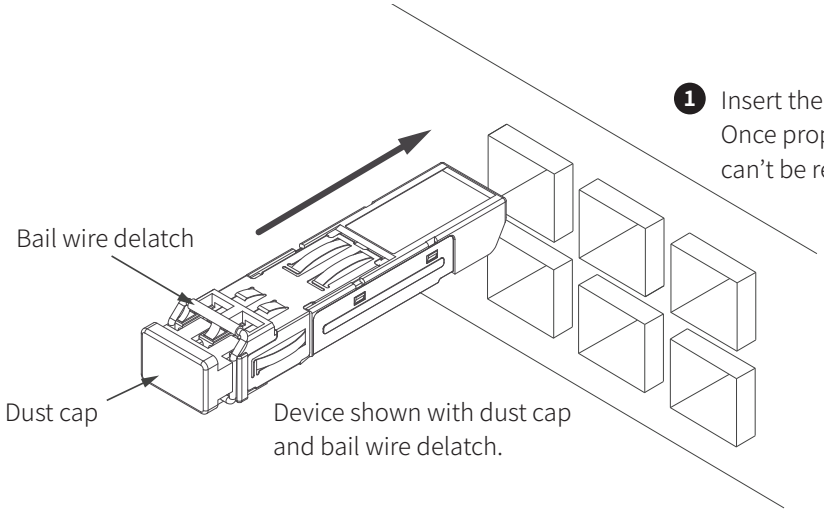
How to reset your GigaCore 26i through Araneo:

- With a computer connected to the device, open Araneo.
- Select the GigaCore you wish to reset.
- The Reset option becomes available on the Utilities section of the system tray at the bottom of your screen in Araneo.
- Choose if you want to keep the IP settings.
- Choose if you want to keep the profiles.
- Click Reset.



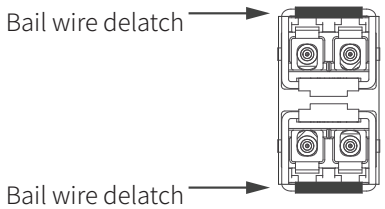
2.7 Installing Mini GBIC (SFP) transceivers

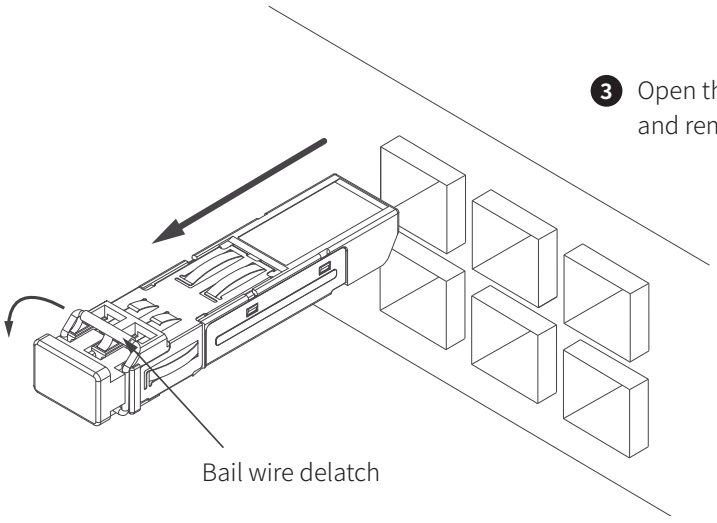
The GigaCore 26i is equiped with six SFP cages. These cages accept mini GBIC transceivers.



1. Insert the transceiver into the SFP cage. Once properly engaged, the transceiver can't be removed.

2. Be aware of the insertion direction:
   - port 21, 23 and 25 must have the bail wire delatch on the top.
   - port 22, 24 and 26 must have the mini-GBIC transceiver upside-down.





3. Open the ball wire delatch to disengage and remove the mini-GBIC transceiver.

RECOMMENDED TRANSCEIVERS

In order to get the best performance, Luminex recommends the use of the following transceivers:

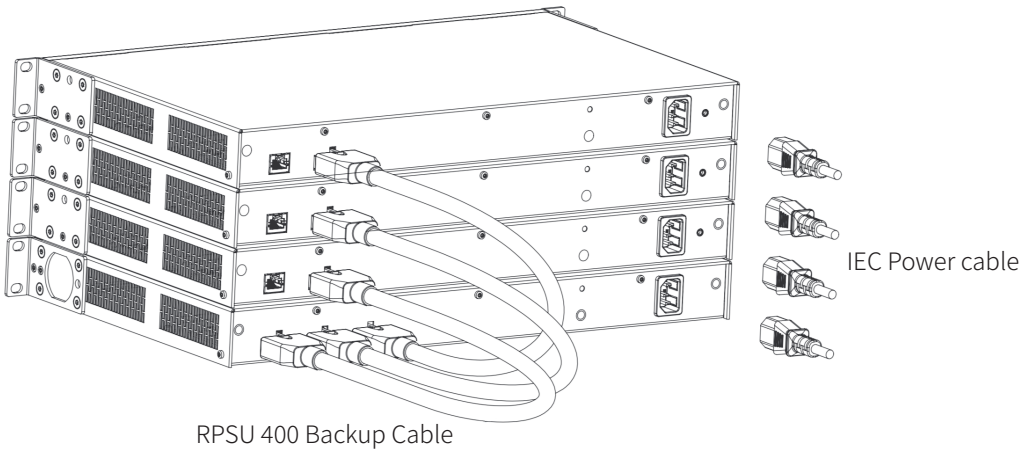
LU 90 00871	GigaCore 1.25Gd Multi-Mode Fiber transceiver.
LU 90 00872	GigaCore 1.25Gd Single-Mode Fiber transceiver.
LU 90 00874	GigaCore 1.25Gd Copper RJ45 transceiver.

2.8 Connecting the GigaCore Redundant Power Supply Unit 400

The GigaCore 26i and GigaCore 26i with PoE provide a connector to an optional Luminex Redundant Power Supply Unit (RPSU400), providing redundancy on power level for both the mains and the PoE power.
Only use the RPSU400 to connect to the GigaCore 26i or GigaCore 26i with PoE.
The article number for the RPSU400 is LU 01 00061.

One RPSU400 can monitor up to three GigaCore 26i or GigaCore 26i with PoE devices but can only supply power to one device.

THIS UNIT HAS MORE THEN ONE POWER SUPPLY. DISCONNECT ALL POWER SUPPLIES BEFORE SERVICING TO AVOID ELECTRIC SHOCK!



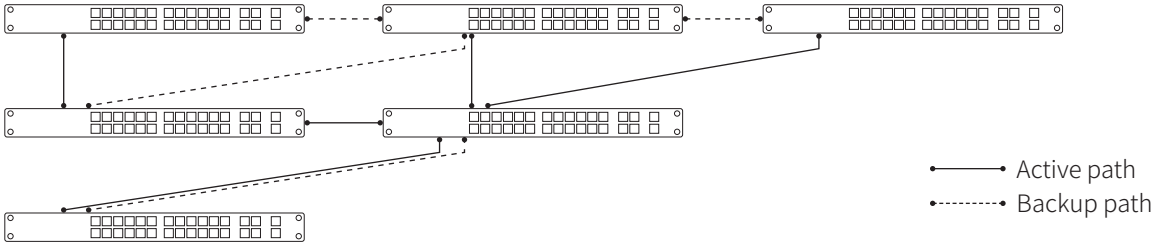
RPSU 400 Backup Cable

3. GigaCore features explained

The GigaCore range of switches offers many unique features which greatly simplify your everyday job. These features will be explained in the following paragraphs.

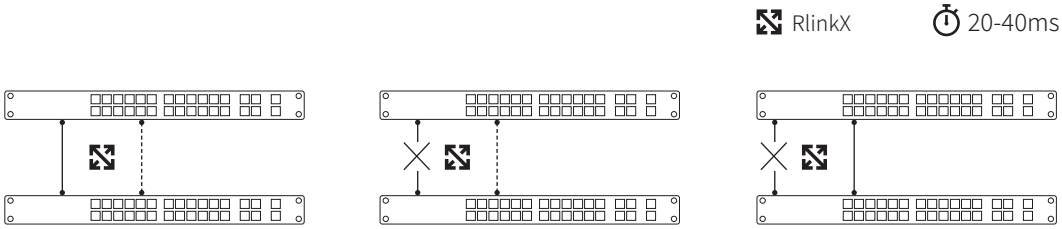
3.1 RLinkX

RLinkX, which stands for **R**edundant **Link** by Lumine**X**, is an automated system to easily create redundant paths between your GigaCore switches. Switches automatically create active and redundant paths, providing an effortless method to create safe networks.



If one of the active paths fails, the switches will enable a redundant path in a seamless manner.
The recovery time is between 20 and 40ms. By default, all GigaCore ports have RLinkX enabled, which means you can interconnect any GigaCore switch between each other. All redundant paths will be created automatically by the switches, no need for configuration.
To create a redundant path with RLinkX, connect a minimum of two links between two GigaCore switches. The blue RLinkX LEDs of the connected ports will turn on, indicating the redundancy is active and available.

If your port's RLinkX LED turns off, you have lost one of your redundant paths.



User connects two switches with two links. The switches automatically create a backup link.

Active link becomes unavailable.

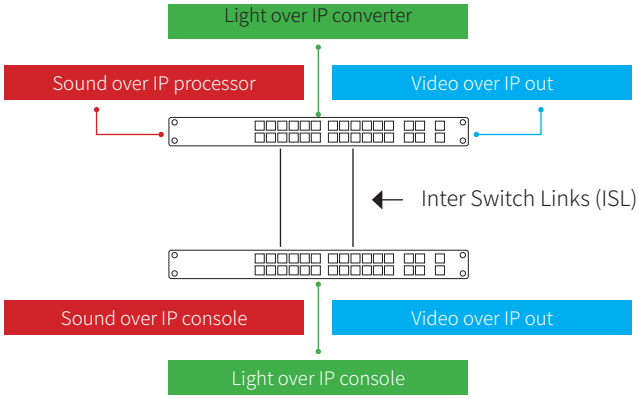
Backup link becomes active automatically.

3.2 Groups (VLANs)

The groups function allows the user to segment the network into several virtual networks (VLANs). The main benefit of this function is that no group will affect the other groups, on protocol level.
The user can create several groups on the network, and each device included in a group will be able to communicate with devices in this group only. This will result in a better bandwidth, and no protocol conflict.

Three groups have been created in the illustration below: Red, Green and Blue. Each device included in each group can communicate with devices from the same group only. Thus, the sound console and the sound processor can talk to each other without being flooded by packets streamed by the two other groups.

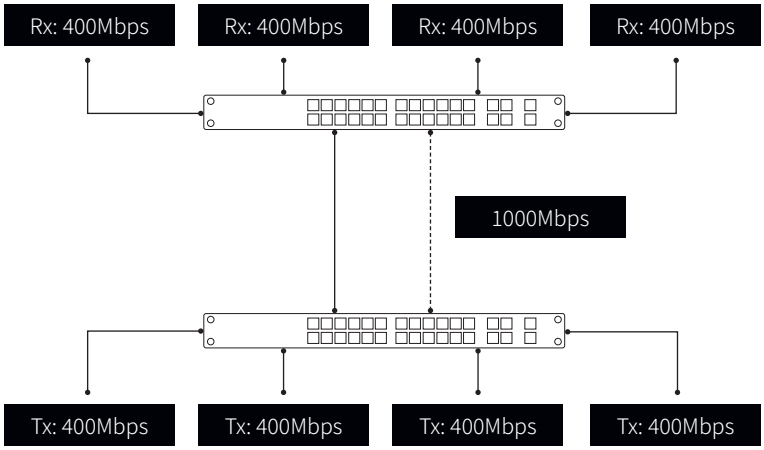
The GigaCore switches offer 20 pre-defined groups, to which the user can assign any of the ports. Two devices must be part of the same group to communicate.
When more than one one switch is used in a group-based network, the **I**nter **S**witch **L**ink group (ISL Group-0) must be used to forward the groups between switches.



3.3 MultiLinkX

Most of the time, a redundant link set with RLinkX between two GigaCore switches will be good enough for the everyday event. A 1000Mbps link is more than enough for most of the current applications. However, it can happen that you will need to transfer a larger amount of data between the switches.

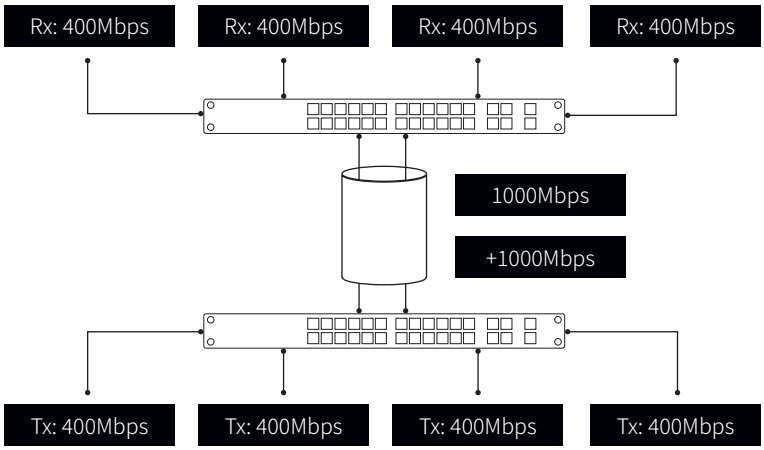
For example, four video transmitters are transmitting four video streams to each dedicated receiver. Each stream requires a throughput of 400Mbps, which represents 1600Mbps in total.



However, only one link is active between the switches, as the other link is used as redundant link. So, a maximum of 1000Mbps data transfer can be achieved on this link. In our example, we need 1600Mbps of throughput to transfer all four video streams between the switches. This is not enough, the link between the switches will create a bottleneck, resulting in data loss or data delay. The video streams won't be delivered in time and will create lag in the video output.

The solution? MultiLinkX!

MultiLinkX enables you to gather several links together and turn them into one virtual link (link aggregation). This provides you with more bandwidth between the switches, and thus more throughput. MultiLinkX can accept a maximum of 16 ports per aggregation, and up to 8 aggregations can be created on a switch.



Working with PTPv2 on MultiLinkX

When working with PTPv2 (Precision Time Protocol v2), you'll notice an inverted PTPv2 icon to indicate the PTPv2 enabled port is in an aggregation. You must always link the lowest ports of the active aggregation to each other to avoid problems with the PTPv2. It is recommended to never create a cross link between ports in a different order.

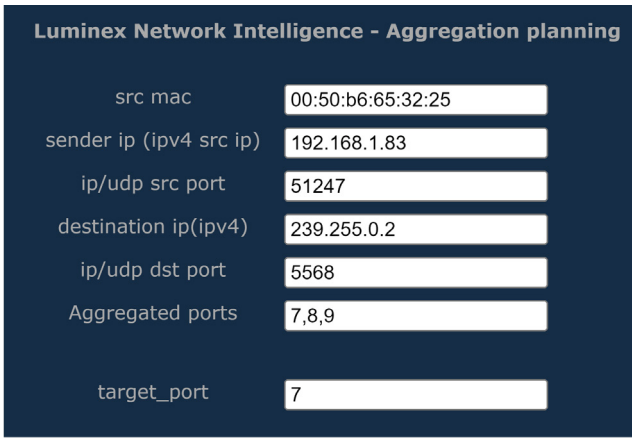
1 + 1 is NOT 2!

By adding an additional link into the aggregation, it's easy to think you'll have double the bandwidth available.
However, MultiLinkX relies on LACP (Link Aggregation Control Protocol). The algorithm used by the protocol requires several parameters of the Ethernet frame to decide to which port of the aggregation the frame will be forwarded.

The protocol uses the following parameters:

- Source MAC Address.
- Source IP Address.
- Source Port (TCP/UDP).
- Destination IP Address.
- Destination Port (TCP/UDP).
- The ports included in the aggregation.

In some circumstances it might happen that several data streams will be forwarded to the same port. To know where the data stream will be forwarded to, you can have a look at our aggregation planning web page. Type the following link into the address bar of your favourite web browser: **http://IPOFMYSWITCH/aggregation_code.html**



According to the parameters of your Ethernet frame, the page will show you which port will be in use. This allows you to predict, but also to solve some problems. In the unlikely event of an overloaded link in an aggregation, the user can solve the problem by simply changing the appropriate IP address for the source, for example.

MultiLinkX technology is available on the ISL ports only! It is also a good habit to allocate the specific number of links in an aggregation to fulfil your throughput requirements, plus one link. If one link fails, you'll still have the minimum number of necessary links to transfer all your data!

4. Configuration

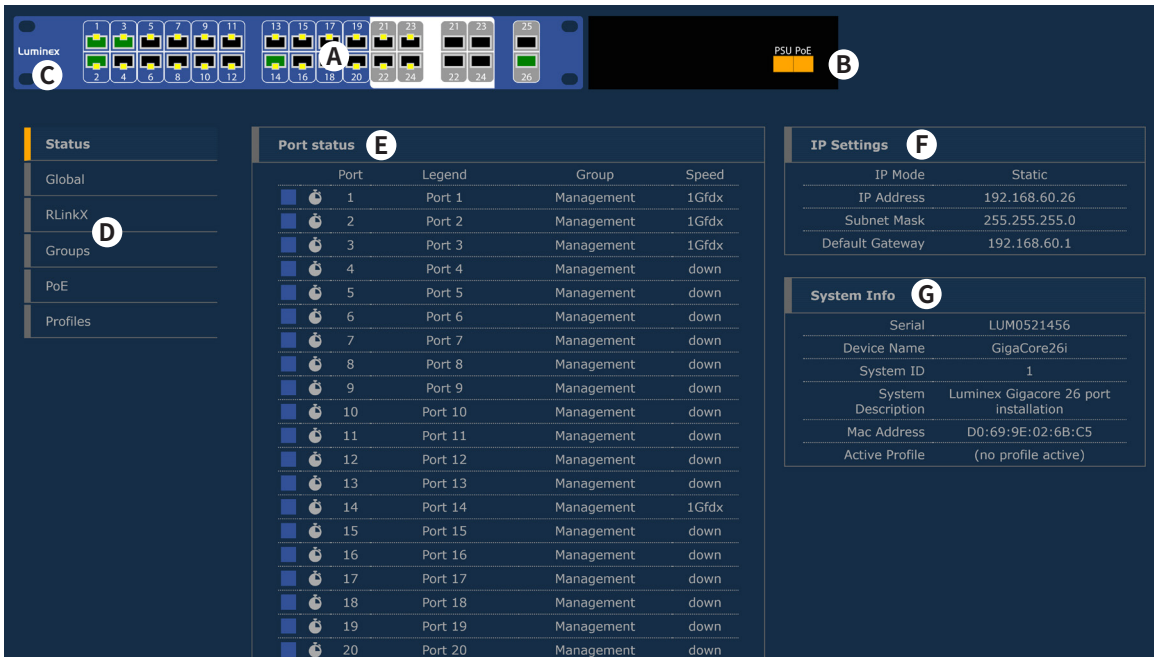
In the next paragraphs we will describe how to configure your GigaCore switch via the build in web interface. Alternatively, you could configure your switch using Araneo. Araneo is available for Windows and MacOS and can be found in the download section of our website: http://www.luminex.be/download-araneo/.

PLEASE KEEP IN MIND THE WEB INTERFACE OF A SWITCH CAN ONLY BE REACHED THROUGH A PORT ASSIGNED IN THE MANAGEMENT GROUP (FROM THE SWITCH YOU ARE CONNECTED TO, OR FROM ANOTHER SWITCH THROUGH AN ISL PORT). YOU NEED AT LEAST ONE PORT ASSIGNED TO THE MANAGEMENT GROUP IN YOUR ENTIRE NETWORK TO REACH THE WEB INTERFACE OF ALL YOUR GIGACORE SWITCHES.

FACTORY DEFAULT, ALL PORTS ARE ASSIGNED TO THE MANAGEMENT GROUP.

WEB INTERFACE PRESENTATION

Launch your favourite web browser and type the IP address of your GigaCore. Press enter to validate. Use admin in the user field and leave the password field blank.



4.1 Status page

(A) Drawing of your GigaCore

This product image gives you a quick overview of the switch port status. Active ports are filled with the following colours:

- Orange: 100Mbps link.
- Green: 1000Mbps (1Gbps) link.

(B) RPSU connectors

On the right-hand side of the switch's image, two squares indicate the status of the RPSU connectors (PSU and PoE).

Three different status colours are available:

- Orange: No RPSU connected.
- Green: RPSU connected.
- Red: Power error.

(C) Identify

Clicking on the Luminex logo will identify your GigaCore in the network. The mode LEDs will flash green three times.

(D) Main menu

On the left-hand side, you can find the main menu. Click on any tab to reach the corresponding menu.

(E) Port status

This table gives you a quick overview of the switch's port settings. Parameters such as port speed and legend can be modified in the following menu: Global > Port Settings.

(F) IP Settings

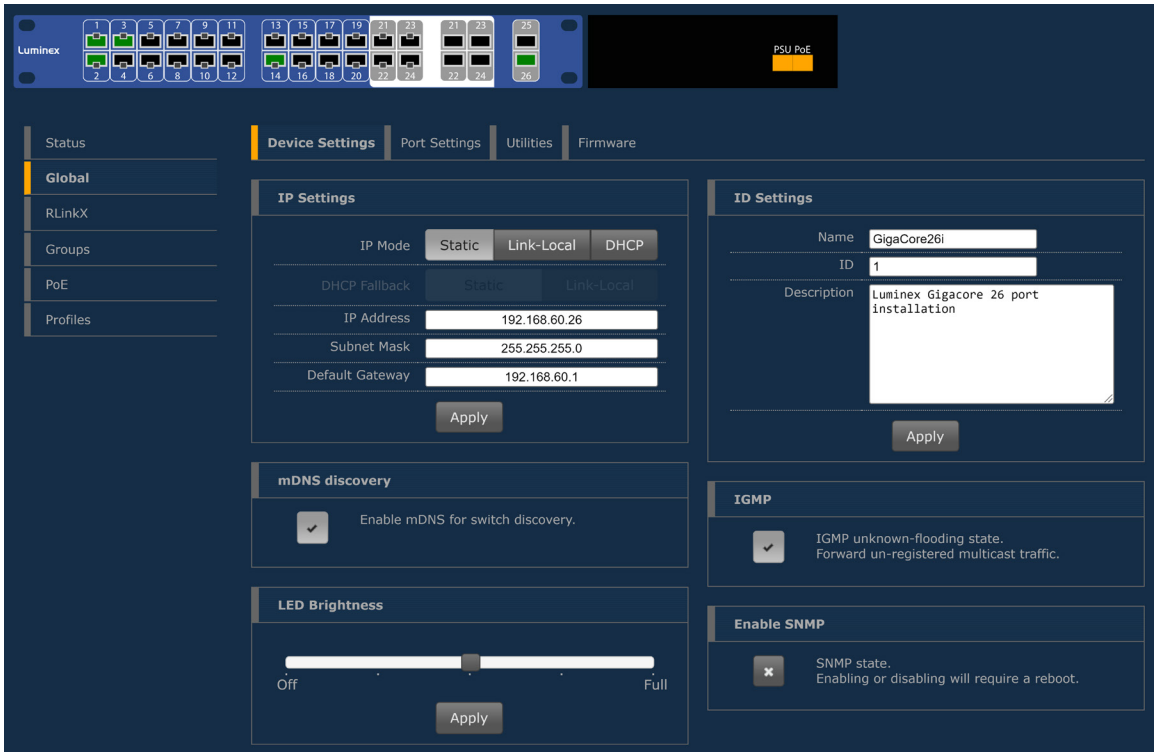
Find here all the network settings of the switch. These parameters can be modified in the following menu: Global > Device Settings.

(G) System info

Find here all the information of the device such as serial number, device name, system identifier, system description, MAC address and if a configuration profile is currently in use. This information can be modified in the following menu: Global > Device Settings.

4.2 Global page

The global page consists of four sub menus:



4.2.1 Device settings

This menu allows you to change the IP and ID settings of the unit, and the brightness of the port LEDs.

IP SETTINGS

Assign here the IP mode and IP address of your switch. This IP address will be used to reach the switch's web interface. The default IP address can be found at the rear of the device.

There are three IP modes available:

- **Static (default)**
  Enter your preferred IP address and the subnet mask. Enter your default gateway IP address if your switch needs to be reached from a routed network. Press apply to safe your setting.

- **Link-Local (zeroconf)**
  When using Link-Local the switch will auto assign an IP address in the range 169.254.x.x/16.

- **DHCP (Dynamic Host Configuration Protocol)**
  If your network is equiped with a DHCP server, you can enable the DHCP client of the switch for it to receive an IP address automatically from the DHCP server. When DHCP is enabled, the user can choose to use a static address or the link-local option as fallback IP address in case the DHCP server is not available at bootup.

Other options available in the IP Settings menu are to enable or disable mDNS discovery (default is enabled).

ID SETTINGS

Here you can set the ID number of the switch and give the device a name and describtion to easily identidy your switch in your network.

LED BRIGHTNESS

The LED slider allows you to change the brightness of the port mode and link LEDs and the status LEDs on the GigaCore. The port mode and link LEDs can be dimmed to OFF but the status LEDs will always stay visible.

IGMP (INTERNET GROUP MANAGEMENT PROTOCOL)

Enable or Disable the IGMP unknown-flooding state here. When enabled all unregistered multicast traffic is forwarded regardless.

SNMP (SIMPLE NETWORK MANAGEMENT PROTOCOL)

Here you can configure whether you want to use SNMP. Enabling or Disabling SNMP requires a reboot of the device.

4.2.2 Port settings

This menu allows you to change the port's speed, add a legend to each port and enable remote monitoring per port.

The port speed drop-down menu offers the following options:
- Disabled: Disable the port. The port will appear greyed out on the top switch image.
- Auto: The port automatically detects the speed of the connected device (default).
- 10Mbps HDX: 10Mbps Half Duplex.
- 10Mbps FDX: 10Mbps Full Duplex.
- 100Mbps HDX: 100Mbps Half Duplex.
- 100Mbps FDX: 100Mbps Full Duplex.
- 1Gbps FDX: 1000Mbps Full Duplex.

4.2.3 Utilities

This page brings you the tools to reset your device in different ways and set some default security parameters.

RESET

This menu allows the user to bring the switch into different levels of reset:
- Preserve IP Settings: Tick the upper checkbox if you wish to bring the device back to the default settings but keep the actual IP parameters set on the device.
  If you leave this checkbox unticked, the device will set the IP address back to the factory default address printed on the label at the rear of the device.
- Preserve all user profiles: Tick the lower checkbox if you wish to bring the device back to the default settings but keep all the profiles stored in the profile manager.

Press **Apply Reset** once you have selected the appropriate options for your reset. Resetting the device with both checkboxes unticked will bring the device back to factory default.

REBOOT

Press the **Reboot Now** button to reboot the device. All your settings will be preserved.

From firmware 2.8.4 upwards, an auto reboot option in case of timestamp offset has been added.
Very seldomly and only for the following scenario, an offset on the hardware timestamp may occur.

When the GigaCore is used with PTPv2 or AVB (gPTP) enabled on fiber ports (not applicable for copper ports), and if only a small fraction of a packet did already arrive on the fiber port, when the port was disconnected. In that particular event, the hardware timestamping may be offset.
GigaCore measures this offset at disconnection and checks if it is faulty. In the rare case it is indeed considered faulty, the only way to recover from this offset is to restart the switch and thus reset the fiber PHYs to eliminate the offset. This is needed to have a syncronised system.
Via the utilities web page of the GigaCore, the user can now choose to reboot automatically if this (OutOfSync symptom) occurs. By default, the auto reboot is disabled.

If the offset occurs on the fiber port, the port mode LED will flash RED to indicate the problem. A message will also be displayed in Araneo and the webUI of the GigaCore.
If the user does not opt for automatic reboot of the switch, then the affected fiber link will automatically get a different path cost in case it concerns a designated port. This means that the link will not be your primary link in case you have a redundant path available (example: ring connection). In case the switch does reboot, a persistent reboot reason will be logged in the switch.

SECURITY

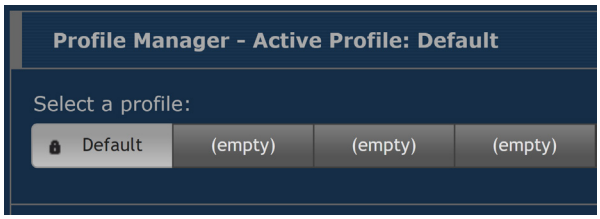
The user can use thi feature to set a password to protect the access to the web interface. The default login for the web interface is:
Username: admin
Password: no password

Click on Change password to apply your new settings.

DEFAULT PROFILE

Selecting the checkbox allows the user to protect the profile stored in slot #1 from being deleted or overwritten. When the user performs a Reload Default from the front panel's mode button (see Reload Default in the reset chapter of this manual), the device will reboot into profile 1. This is a handy tool to quickly recall your favourite profile.

Once the first profile is protected and set as default, a padlock will appear on slot #1 on the profile tab.



4.2.4 Firmware

In the firmware section, you can see two versions of firmware:

- Active firmware is the one currently running on the unit.
- Alternate firmware is the previously installed firmware.

If you would like to downgrade the unit to the previously installed firmware, click on the Activate button. The unit will reboot in this firmware.

You can upgrade the GigaCore with our latest firmware. To upgrade the unit, please apply the following procedure:

- Download the latest firmware from the support section of our web site, https://www.luminex.be/support-2/product-downloads/
- Extract the downloaded archive and have a look at the release notes included.
- Click on the Upload firmware button in the web-UI of your device.
- Select the file you have extracted.
- The GigaCore will start the firmware upgrade. The unit will reboot after the upgrade is completed.

Alternatively you can upgrade the firmware of your switches via Araneo.

WARNING: DO NOT DISCONNECT POWER DURING THE FIRMWARE UPGRADE!

4.3 RLinkX

RLinkX is designed to provide a plug and play redundant system. This menu allows you to enable/disable RLinkX on each port of the switch. A port with RLinkX enabled is represented by a blue rectangle around the port.

RLinkX Settings:

To enable/disable RLinkX on a port, follow the following steps:

- Click on the port(s) you wish to select. Selected ports will be highlighted.
- Choose Enable ON/OFF.
- Click Apply to submit the changes.

It is sometimes useful to disable RLinkX on some of the ports on the GigaCore as some devices do not comply with the RLinkX packet the switch sends out periodically to maintain its redundant link.

Once a minimum of two links are connected between two switches, the blue LEDs on those ports will light up indicating the redundancy is active and operational.

ADVANCED

MultiLinkX, our aggregation protocol, has been designed to work flawlessly with RLinkX, our redundancy protocol.
To provide users with a more advanced and efficient method to recover topology in case of a link failure, Luminex has developed a new method for best link cost calculation in an aggregated network, based on the available bandwidth per link.

This calculation method is the default one when using MultiLinkX. However, in case you would have to connect your aggregated links to an existing IT network, best is to select the usual path cost calculation based on RSTP.

To select this method, click on the Advanced button and select RSTP as link cost. Press apply to submit your changes.
When a user connects a minimum of two aggregated links between two switches, it is easy to think these are redundant links. However, this is seen as a unique link between the switches. Therefor, the RLinkX LED will not lit up. This is normal behaviour.

4.4 Groups (VLANs)

Groups is a technology which offers the user to easily segment the network into several virtual networks (VLANs). This menu allows the user to assign ports to one of the 20 embedded groups of the switch.
A group is a combination of ports and the user can assign as many ports to a group as they require.

The GigaCore range offers three types of groups:

- **Group 0 (ISL)**:
  This group is dedicated to the Inter Switch Link (Trunk). This is the name given to the interconnection links between GigaCore switches in a network. The ISL links are meant to forward the group-based packets. When RLinkX is enabled on these Inter Switch Links, then the GigaCore knows that there is another GigaCore on the other side of the link. If you already have connected your links, click on the advanced button and click **Retrieve from RLinkX**. The switch will automatically assign the linked ports as ISL ports.
- **Group 1 (Management)**:
  This group is dedicated to the management of the switch (web interface). You need to have at least one port of the switch assigned to the management group in order to be able to reach the web interface. In a star, ring or mesh network topology comprised of GigaCore switches, you need to have at least one port on one of the switches set to this group in order to be able to reach the web interface of any of the switches.

- **Group 2 to 20**:
  These are the generic groups to be used for any purpose such as sound, lighting, intercom, video....

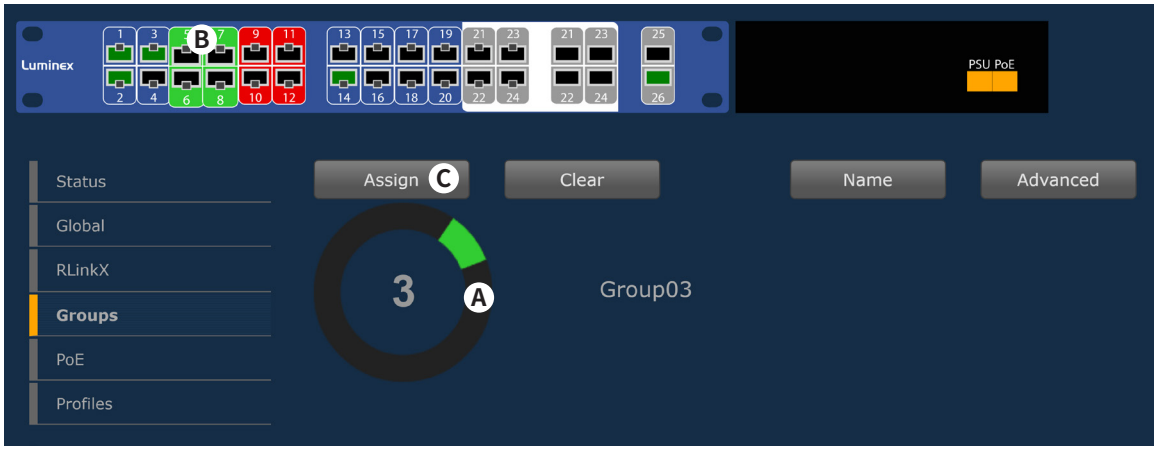
To assign ports to a group, please follow the following steps:

(A) **Select the group** you wish to assign ports to. Use the coloured index of the jog and rotate the jog to change the group. If you wish to change the name of the group, click on the Name button. A name window appears to rename the group. Click Apply to confirm your changes. Without Apply or Cancel to finish the name change, you can not access any other groups.

(B) **Select the ports** you wish to assign to the group. Selected ports will be highlighted.

(C) **Click Assign** to assign the ports to the group. The selected ports will now change to the colour of the selected group. If you are not satisfied with the selection of ports and wish to restart your selection, you can click Clear to reset the selection.

PLEASE KEEP IN MIND, THE WEB INTERFACE OF A SWITCH CAN ONLY BE REACHED THROUGH A PORT ASSIGNED TO THE MANAGEMENT GROUP (FROM THE SWITCH YOU ARE CONNECTED TO, OR FROM ANOTHER SWITCH THROUGH AN ISL PORT). YOU NEED AT LEAST ONE PORT ASSIGNED TO THE MANAGEMENT GROUP IN YOUR ENTIRE NETWORK TO REACH THE WEB INTERFACE OF ALL YOUR GIGACORE SWITCHES.



ADVANCED

The advanced pane offers the user access to extended parameters such as:

- VID (VLAN ID):
  Luminex group technology relies on the 802.1Q VLAN protocol. By default, Luminex groups have a default VLAN ID of the group number x 100. If required, the user can change the VID of the group. Be aware that if you wish to change the VID you will have to change this on all the switches using this group.

- IGMP (Internet Group Management Protocol):
  IGMP is required when using multicast protocols.

  Snooping: This button activates IGMP snooping. IGMP snooping is a smart way to manage multicast packets and forward them to the registered ports. The main advantage of the IGMP snooping is to avoid ports to be flooded with unrequested packets.

  Querier: IGMP snooping requires at least one switch in a group to act as a querier. The querier registers the multicast packets to the corresponding ports. If more than one querier is activated per group, the switch with the lowest IP address will be elected as querier. This election process is automated.

- PTPv2 (Precision Time Protocol):
  The Precision Time Protocol is a protocol used to synchronize clocks throughout a computer network. On a local area network, it achieves clock accuracy in the sub-microsecond range, making it auitable for measurement and control systems.

  GigaCore supports both PTPv1 and v2 packets. PTPv1 (used by protocols like Dante) is prioritised by the build in DiffServ/QoS settings. In case of PTPv2 (IEEE1588-2008), the switch actively takes part in the clocking protocol by timestamping packets at the hardware level.

  With PTPv2, the GigaCore can be part of the clock domain which is necessary for protocols such as AES67.

  The user can enable/disable PTPv2 communications within the selected group by validating the tick box and by selecting the mode that best fits the setup.

  - E2E - End to End.
    The E2E delay mechanism measures the delay from the Slave to the Master.

- P2P - Peer to Peer.
  The P2P delay mechanism measures the delay between two nodes only independent of their states.

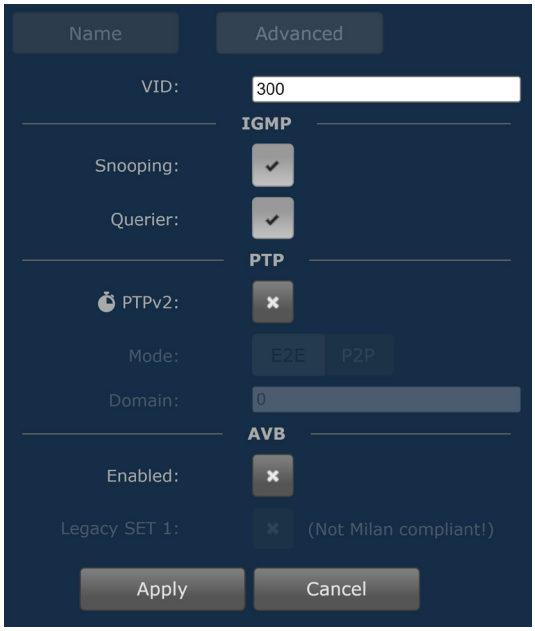
Domain: please enter a value for your PTP domain here.

Press Apply to submit your changes. You can have only one PTPv2 setup per switch, so in one group only. On the status page, a stopwatch will be displayed for every port set in the group associated to a PTPv2 domain.

- AVB:
  The GigaCore switches fully support AVB/AVB Milan. In order to configure a group to be used for AVB, select the group, click the advanced options and select the tick box AVB.

  A warning screen will pop up to warn the user for the following:
  - PTPv2 is disabled in every group.
  - MultiLinkX (aggregation) is disabled.
  - VID 2 is not permitted for a group.
  - Only use 100Mbps/1Gbps FDX port links.
  - AVB can only be active in one group.

  A button Legacy SET 1 has been added to enable compatibility with devices that expect two declerations instead of one after a LeaveAll of the MSRP protocol. Some legacy devices expect/need seperate decleration(s). The following warning will be given when choosing this option:
  - Warning: Enabling this button makes the LeaveAll to send 2 iso 1 joinMts. This option can be needed as workaround in combination with some non Anvu/Milan certified components.



MULTILINKX

MultiLinkX (also known as link aggregation) allows you to gather several links together in order to increase the available bandwidth between switches. MultiLinkX is available for ISL ports only.

To enable MultiLinkX you first select group zero (ISL) on the group page. Select the “Advanced” option and tick the box “Enabled” under the text MultiLinkX. Press apply to submit the changes.

Once MultiLinkX is enabled on the ISL ports, a Magenta bar will appear below/above the selected ports.

Once MultiLinkX is active on the ISL ports, the Magenta bar will turn White.

TAGGED MANAGEMENT GROUP VID 1

Sometimes it is required to integrate GigaCore switches with third party hardware. In some systems the management group needs to be untagged in the ISL group. On the GigaCore switches the management group is tagged by default.

To un-tag the management group VID:1, select group zero (ISL) on the group page. Select the **Advanced** option and un-tick the box **Enabled** under the text Tagged Management Group VID:1.
Press apply to submit the changes.

4.5 PoE (LU 01 00048-POE only)

PoE (Power over Ethernet) is a convenient way to transport both data and power over the same network cable and doing so powering a device with its data cable. Your GigaCore switch can then be a data connection hub and power source for your end devices.

PoE supply will provide PoE enabled ports as a default configuration.

A PoE enabled port is displayed with a yellow latch above the port. When the switch is currently sourcing a PoE device through a port, the latch will turn orange, as is the port LED on the front.

The PoE status page will offer the following information per port:

- The Powered Device Class (0, 1, 2, …).
- The power consumption (Watts).
- The current consumption (mA).
- The priority (low, high, critical).
- The port status.

On the right-hand side of the page, a bar graph displays the current power consumption of the switch. The switch can deliver a total of 370W or, 330W for RevA devices, to share on the 24 RJ45 ports, with a maximum of 30W per port. (PoE+ compliant).

Two arrows will indicate the following values:

- Allocated power: based on the classes of the connected PoE devices, the switch will allocate the necessary power to the PoE supply. This value is represented with a grey index.
- Actual usage: a green index will show the current power delivered by the PoE supply.

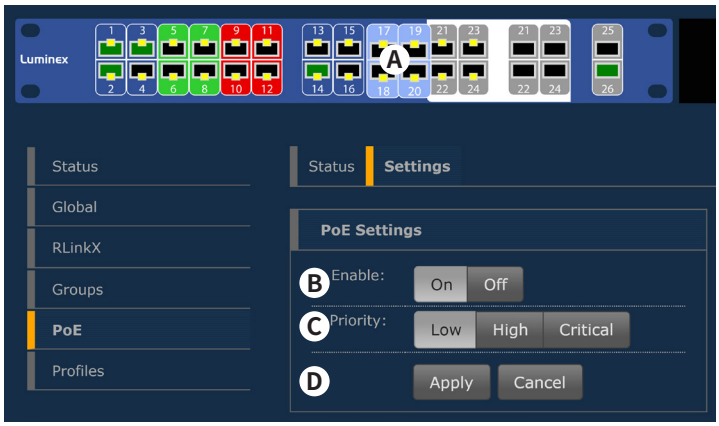
POE SETTINGS

The settings page allows you to assign the following PoE parameters to the RJ45 ports:

- Enable/Disable PoE per port.
- Assign a priority on the port.

To change the PoE parameters of one or several ports please apply the following procedure:

(A) Select the port(s) you wish to modify.
(B) Enable or disable these port(s).
(C) Select the priority for the port(s).
(D) Apply your new parameters.



The priority of a port is used when the switch reaches the limit of its maximum output power.
In the unlikely situation of the PoE devices requiring too much power from the switch, the switch will first disable the port(s) with the lowest priority.

POE ADVANCED

In the advanced PoE settings the user has the option to configure the following options:

Management type:

- Class (PoE classification).
- LLDP (Link Layer Discovery Protocol).

Power Budget:

- Consumption, the actual consumed power is being used to determine the maximum output power.
- Reserved, the class is used to reserve the maximum allowed power for that class to determine the maximum output power.

4.6 Profile manager

The profile manager allows the user to easily save/recall/export or import a configuration.
A profile will contain the following parameters:

- Device settings
- Port settings
- RLinkX settings
- Group settings
- PoE settings

This way the user can create a comprehensive configuration for a switch, save it as a profile, and recall it later when needed.

A maximum of ten profiles can be saved on a GigaCore switch.
The switch also offers to export or import a profile through a computer, providing the user with an easy way to exchange profiles between switches.

From one switch, the user can select a profile to export to a computer. Then, from the same computer, the user will be able to load this profile into an empty slot on another switch.
Exchanging profiles between switches can be a time saving process. The user may start with one base configuration and export it to the other switches for minor changes. These newly created profiles will then be saved locally.

SAVING A PROFILE

If you wish to save the actual configuration of your switch, first select an empty slot amongst the 10 available slots. Press the Save button. A small window will pop-up to enter the name of the profile.

Click on OK. Your profile is now saved in the switch.

It is good practice to always create a default configuration for your switch!

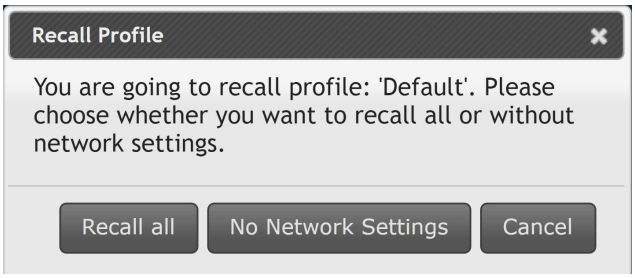
RECALL A PROFILE

To recall a profile, select it amongst the ten available profiles in the upper tab. Here you can preview the content of this profile.
Click on the **Recall** button. A window will pop-up to let you select either to reload all the configuration settings (Recall All), including the network settings, or just the switch configuration (No Network Settings). This very useful feature makes the exchange of profiles between switches possible. You can thus avoid getting the same IP address twice in the network by using the same profile.

Once you have selected the profile you wish to recall, the switch will reboot and will reload the requested profile.
The recall process can take a minimum of 30 seconds to a maximum of 2 minutes.

If you intend to reload a profile with a different IP address, you can try to reach the newly loaded IP address after about 50 seconds, manually from the switch's web interface.
Otherwise, the web interface of the switch will be automatically reloaded after a maximum of 2 minutes.

Your computer's IP address needs to be set in the same subnet mask as the loaded profile's IP.



PLEASE KEEP IN MIND THE WEB INTERFACE OF A SWITCH CAN ONLY BE REACHED THROUGH A PORT ASSIGNED IN THE MANAGEMENT GROUP (FROM THE SWITCH YOU'RE CONNECTED TO, OR FROM ANOTHER SWITCH THROUGH AN ISL PORT). PAY ATTENTION THE PROFILE YOU'RE GOING TO RECALL IS NOT CHANGING YOUR LINK TO THE WEB INTERFACE OF THE SWITCH YOU'RE WORKING WITH. ALSO PAY ATTENTION THAT THE IP ADDRESS THAT WILL BE RELOADED WITH THE PROFILE DOESN'T CONFLICT WITH ANOTHER IP IN THE NETWORK. THE SWITCH'S WEB INTERFACE MAY BECOME UNRESPONSIVE IN CASE OF AN IP CONFLICT.

EXPORT A PROFILE

To export a profile, select it amongst the ten available slots. Once selected, click the Export button to download the profile to your computer. You'll be asked to select the download location of the profile on your computer.

IMPORT A PROFILE

To import a profile, select an empty slot in the profile manager tab. Once selected click the Import button to select the profile on your computer. Once the file is selected, validate to import the profile in the empty slot. A message will confirm the successful import process.

DELETE A PROFILE

To delete a profile, select the profile in question and click Delete. The profile will automatically be erased, and the preview window will display an empty space.

WHEN USERS SAVE A PROFILE, THE OK LED WILL BLINK GREEN FOR ABOUT 5 SECONDS TO INDICATE THE WRITING PROCESS TO THE FLASH MEMORY. PLEASE DO NOT SWITCH OFF POWER TO THE UNIT WHILE THE OK LED IS BLINKING GREEN! YOUR SWITCH CONFIGURATION MIGHT BE ERASED DURING THE NEXT BOOT UP.

DEFAULT PROFILE

As described in section 4.2.3, the first slot of the profile manager can be locked. This will be indicated by a padlock on the profile itself. This profile can't be erased nor overwritten, unless you unlock it. To unlock the profile, untick the checkbox in Global>Utilities.

5. Reset

In the case you need to reset the unit without the web interface or Araneo, the GigaCore 26i offers different levels of reset, based on the ones you can find in the web interface or Araneo.

- **Reset**: The unit is brought back to its default configuration, with the default IP address that can be found on the rear of the device. Profiles stored in the device are preserved.

  Default login: admin
  Default password: No password

- **Reload Defaults**: The profile stored in slot one is reloaded. The “Reload Default” is available only if the profile stored in slot one has been locked through the utility menu. If this profile is set with a password, then the user will need to enter it through the web interface to access the switch’s menu.

  Default login: admin
  Default password: No password

- **Factory Reset**: With a factory reset the device is fully reset to the state it left Luminex and ALL data will be erased.

  Default login: admin
  Default password: No password

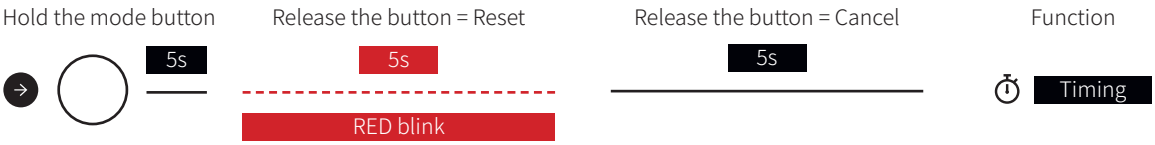
The different reset options in more detail:

5.1 Reset

Condition 1: The device is currently running.
Condition 2: There is no profile set as default profile.

Hold the mode button for atleast five seconds until the four status LEDs are flashing red. Releasing the mode button whilst the status LEDs are flashing will reset the unit.

Be aware, releasing the mode button before the status LEDs start flashing red, or after the LEDs have stopped flashing red, will cancel the operation.

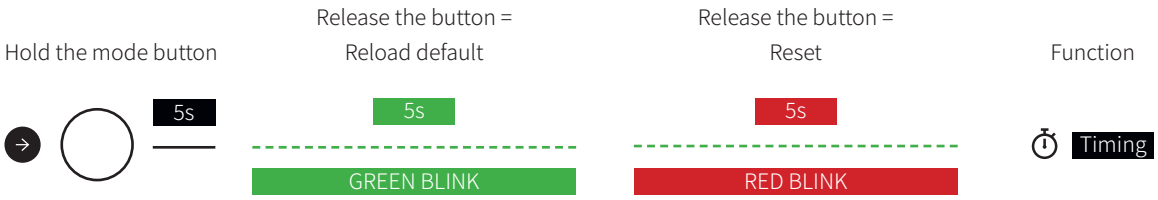


5.2 Reload defaults

Condition 1: The device is currently running.
Condition 2: The profile stored in slot one needs to be locked through the device settings menu.

Hold the mode button for atleast five seconds until the four status LEDs start flashing green. Releasing the mode button whilst the status LEDs are flashing green will reboot the switch into the profile stored in slot one.
If you keep the mode button pressed for another 5 seconds, the status LEDs will start flashing red to provide you with a reset.

Be aware, releasing the mode button before the status LEDs start flashing green, or after the LEDs have stopped flashing red, will cancel the operation.

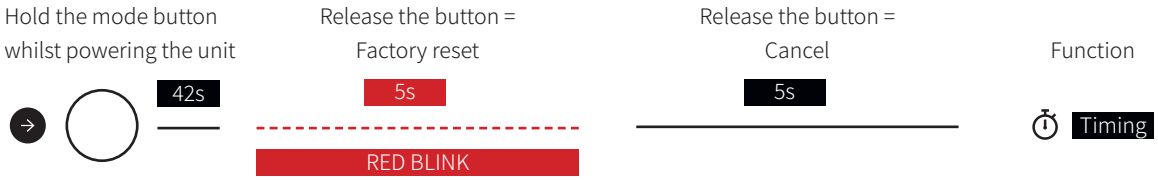


5.3 Factory Reset

Condition 1: The device is switched off.

Hold the mode button while connecting the device to mains power. After approx. 42 seconds, the four status LEDs will start flashing red. Releasing the mode button whilst the status LEDs are flashing red will factory reset the device. All customer stored profiles will be erased.

Be aware, releasing the mode button before the status LEDs start flashing red, or after the LEDs have stopped flashing red, will cancel the operation.



5. Technical Support

Sometimes it is required to get more help with your device or application. There is a knowledge base available online that gets updated on a regular basis at: https://support.luminex.be

If you need to ask our team for more help or you need to return a device to Luminex for diagnostics or repair, you can also find the option on this page to request an RMA or start a support ticket.

Alternatively, you can send an email to support@luminex.be
or for United States of America and Canada to: support@luminexamerica.com

7. Technical Specifications

GIGACORE 26I WITHOUT POE

MECHANICAL	
Enclosure	Robust all metal housing
Dimensions (W x D x H)	482 x 270.31 x 44 mm
Material thickness	2 mm
Mounting type	Rack mount
Weight	3.5 kg
Packaging dimensions	547 x 425 x 80 mm
CONNECTIVITY	
Network	24x 10/100/1000Mbps RJ45 connectors (including 4 dual media ports)
	6x SFP cages, compliant with 10/100/1000Mbps Mini GBIC transceiver (including 4 dual media ports)
Serial	1x serial console on RJ45 (RS232)
Power	1x IEC inlet
	1x port for redundant power supplies
TEMPERATURE MANAGEMENT	
Intelligent control	Yes
Number of fans	2x
Position of fans	Left-hand side (loooking from the front panel)
Airflow direction	Left to right
USER INTERFACE	
Device status	3x RGB LED
	• Device
	• Power
	• Redundant links (RlinkX)
Fiber port status	2x RGB LED
	Port Speed/Activity
	Port Status
	• Group indication
	• Redundant Link
	• Link Agregation
RJ45 port status	2x RGB LED
	Port Speed/Activity
	Port Status
	• Group indication
	• Redundant Link
	• Link aggregation
FIBER PORT SPECIFICATIONS	
Port speed	10/100/1000Mbps BASE-X
Port sensing	Auto Negotiation
RJ45 PORT SPECIFICATIONS	
Port speed	10/100/1000 BASE-T
Port sensing	Auto Negotiation
Auto crossover	MDI/MDIX (allows use of straight or cross wired cable)
Auto sensing	Full or Half Duplex (Gigabit is Full Duplex)

SWITCH FEATURES	
Boot time	26 s
Redundant links	Yes
Group function	Yes
Ethernet compliance	IEEE 802.2
	IEEE 802.3
	IEEE 802.3u
	IEEE 802.3x Flow Control
	IEEE 802.3ab Gigabit Ethernet
	IEEE 802.1p CoS
	IEEE 802.1d Spanning Tree
	IEEE 802.1w Rapid Spanning Tree
	IEEE 802.1s Multiple Spanning Tree
	IEEE 802.1Q VLAN
	IEEE 802.1ad LACP
	IEEE 802.1ab LLDP
	IEEE 1588-2008 PTPv2
	IEEE 802.1 BA-2011
	IEEE 802.1 Q-2011
	IEEE 802.1 AS-2011
Jumbo frames	Yes
Supported protocols	Avnu AVB/Milan
	Dante
	RAVENNA/AES67
	Ethersound
	Q-SYS/Q-LAN
	REAC
	sACN
	ArtNet
	MANet
	HogNet
	RTTrPL (BlackTrax)
	...
Audio protocol compliance	Yes, low jitter and hardware timestamping (IEEE 1588-2008)
Ethernet switch type	Full non-blocking wire-speed switching performance
Memory	4 Mb
MAC Address table	8192 entries
Address learning / aging	Self learning, Auto aging
Switching throughput	52 Gbps
IGMP Querrier	Yes (V1, V2)
IGMP Snooping	Yes, enabled by default (V1, V2, V3)
MANAGEMENT	
Configuration	Built-in WebUI (easy/advanced)
Network wide configuration	Yes, with Araneo software
Firmware upgrades	Via WebUI or network wide with Araneo - contingency option with second firmware file stored

POWER	
Power input	100-240 VAC
	50-60 Hz
	0.5 - 0.29 A
Backup power input	+12 VDC - 2.5A on Molex 14-pin connector
Power consumption	30W
ENVIRONMENTAL	
Operating temperature	0 to +50 °C
Storage temperature	-10 to +70 °C
Humidity (non condensing)	5 to 95% RH
APPROVALS	
Electromagnetic emmissions and immunity	FCC Part 15 CFR 47 class A
	CAN/ICES-003
	EN 55022
	EN 55024
Safety	IEC 60950-1
	EN 60950-1
	UL 60950-1
	CAN/CSA-C22.2 No. 60950-1
Certificates and approvals	cSGSus Mark (UL)
	CE Mark
	UKCA Mark
	CB Certificate
Green	RoHS
	REACH

GIGACORE 26I WITH POE

MECHANICAL	
Enclosure	Robust all metal housing
Dimensions (W x D x H)	482 x 270.31 x 44 mm
Material thickness	2 mm
Mounting type	Rack mount
Weight	4.0 kg
Packaging dimensions	547 x 425 x 80 mm
CONNECTIVITY	
Network	24x 10/100/1000Mbps RJ45 connectors (including 4 dual media ports)
	6x SFP cages, compliant with 10/100/1000Mbps Mini GBIC transceiver (including 4 dual media ports)
Serial	1x serial console on RJ45 (RS232)
Power	1x IEC inlet
	1x port for redundant power supplies
TEMPERATURE MANAGEMENT	
Intelligent control	Yes
Number of fans	4x
Position of fans	Left-hand side (loooking from the front panel)
Airflow direction	Left to right
USER INTERFACE	
Device status	4x RGB LED
	• Device
	• Power
	• PoE supply
	• Redundant links (RlinkX)
Fiber port status	2x RGB LED
	Port Speed/Activity
	Port Status
	• Group indication
	• Redundant Link
	• Link Agregation
RJ45 port status	2x RGB LED
	Port Speed/Activity
	Port Status
	• Group indication
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Auto sensing	Full or Half Duplex (Gigabit is Full Duplex)

POWER OVER ETHERNET	
Standards	802.3af
	802.3at
PoE Ports	802.3af, 802.3at
	On ports 1-24
Total PoE power budget	up to 370W - up to 330W for Rev A devices
LLDP support	Yes
Power allocation	User configurable:
	• Priority per port
	• Consumption vs Class/LLDP based
	• Total power budget firmware limit - port shutdown at overload based on port priority
	• Per port hardware anf firmware power limits based on classification - port shutdown at overload
SWITCH FEATURES	
Boot time	26 s
Redundant links	Yes
Group function	Yes
Ethernet compliance	IEEE 802.2
	IEEE 802.3
	IEEE 802.3u
	IEEE 802.3x Flow Control
	IEEE 802.3ab Gigabit Ethernet
	IEEE 802.3af PoE
	IEEE 802.3at PoE+
	IEEE 802.1p CoS
	IEEE 802.1d Spanning Tree
	IEEE 802.1w Rapid Spanning Tree
	IEEE 802.1s Multiple Spanning Tree
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	0.5 - 0.29 A
Backup power input	+12 VDC - 2.5A on Molex 14-pin connector
Backup PoE input	-54 VDC - 6.5A on Molex 14-pin connector
Power consumption	430W
ENVIRONMENTAL	
Operating temperature	0 to +40 °C
Storage temperature	-10 to +70 °C
Humidity (non condensing)	5 to 95% RH
APPROVALS	
Electromagnetic emmissions and immunity	FCC Part 15 CFR 47 class A
	CAN/ICES-003
	EN 55022
	EN 55024
Safety	IEC 60950-1
	EN 60950-1
	UL 60950-1
	CAN/CSA-C22.2 No. 60950-1
Certificates and approvals	cSGSus Mark (UL)
	CE Mark
	UKCA Mark
	CB Certificate
Green	RoHS
	REACH

DISCLAIMER

Luminex LCE operates a policy of continuous development. Luminex LCE reserves the right to make changes and improvements to any of the products described in this document above without prior notice. Specifications are subject to change without notice.

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