VLAN-toolbox 24-4
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VLAN-toolbox
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SRS LIGHTING
VLAN-toolbox 24-4
Instruction Manual

Models:

VLAN-toolbox 24-4X-XX

Version 1.0 since 1 September 2024

ATTENTION!

This instruction manual contains important information about the installation and the use of the equipment. Please read and follow these instructions carefully.

Always ensure that the power to the equipment is disconnected before opening the equipment or commencing any maintenance work.

VLAN-toolbox 24-4_en_manual_M352

General information

IMPORTANT INSTRUCTIONS

All safety and operating instructions should be read before the equipment is installed or operated. Only a qualified rigging professional is authorized to operate this equipment. Before installation visually inspect the package to ensure it arrived intact. Verify that the content match your order. If there are any discrepancies, please contact your supplier.

IMPORTANT SAFETY INFORMATION

General safety precautions mentioned below have to be strictly followed during all phases of operation, service, and the repair of this equipment. Failure to comply with these precautions or with specific warnings in this manual violates safety standards of design, manufacture, and the intended use of this equipment.

Do not operate in an explosive atmosphere!

Do not operate this equipment in the presence of flammable gases or fumes. Operation of any electrical instrument in such an environment constitutes a definite safety hazard.

Water, moisture, heat and humidity

Do not operate this equipment near water, in areas with wet floors or in high humidity atmosphere where condensation forms on the equipment. It should never be placed near or over a heat register or other source of heated air and it should not be installed or operated without proper ventilation.

Introduction

Congratulations on purchasing your SRS LIGHTING VLAN-toolbox. You have undoubtedly purchased this switch controller for specific tasks in your data network. For the sake of completeness, here are some highlights of the VLAN-toolbox.

Functions and Control

VLAN-toolbox provides simple way to physically separate data streams within a switch for improved performance in terms of data speed and clearer organization in the form of VLANs.

It allows simple, reliable way to apply trunking for data transport between switches.

It also offers an easy and reliable way to apply link aggregation (linked ports) for high data speeds and/or redundancy. Because of the simplicity there is no need for in-depth knowledge of data networks and IT in general. Built in system prevents incorrect settings that can lead to blocked access to the switch's controls. VLAN-toolbox works independently and doesn't require a laptop or other external equipment.

Power consumption can be monitored when applying Power over Ethernet (PoE).

It allows cable testing and to observe port load.

Technical Data

Dimensions:
483 x 88 x 453 mm (WxHxD)

Weight:
11.8 kg

PoE:
195W

Speed of individual etherCON ports:
1GB/s

Speed of individual fiber ports:
10GB/s

Speed of linked fiber ports:
40GB/s

Operation

How to start

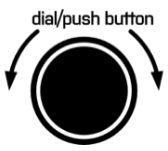
Once the VLAN-toolbox receives power, the boot procedure begins.

Please note that this procedure takes ±4 minutes. The progress bar at the bottom of the display shows that the process is progressing.

Controls

The VLAN-toolbox has two controls: the data button and the escape key.

The data button can be rotated and pressed. Pressing it can be used to confirm your



selection and – on specific screens – to move the cursor.

The escape key can be pressed and the VLAN-toolbox will go back one step in the process you are doing. If you have changed a value, it will be reset to the original value.

VLAN-preset

The ModulAir VLAN-toolbox has nine VLANs available as standard. Each of these has a setting that suits the specific application. For the sake of clarity, the numbering of the VLANs is limited to tens. Based on the application, the overview looks like this:

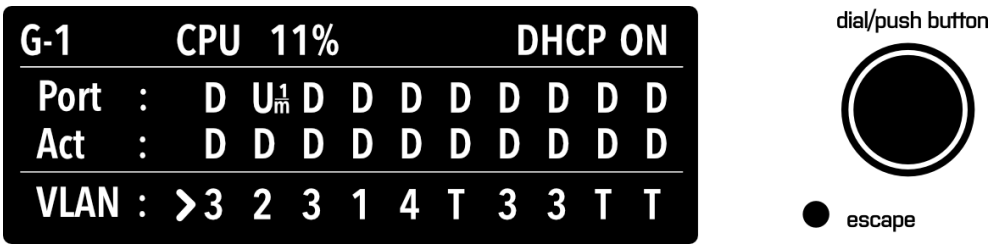
	Application
Vlan-10	Control-1
Vlan-20	Audio-oIP
Vlan-30	Dante-Pri
Vlan-40	Dante-Sec
Vlan-50	Art-Net
Vlan-60	sACN**
Vlan-70	Light-oIP
Vlan-80	Video-oIP
Vlan-90	Intercom
Trunk	Ethernet 1Gb/s
Trunk LAG 1-4	Ethernet 1Gb/s (group1-4)
Trunk LAG 5-6	Fiber 1Gb/s (group5-6)

When the VLAN-toolbox is reset to factory defaults, the VLAN assignment from the table above applies.

Assigning VLANs to a port

To separate data streams such as DANTE, sACN and Video over IP, they can be individually assigned to ports of VLAN-toolbox.

The first twenty Ethernet ports, which are assigned per group (G1 to 10) on the front panel of the VLAN toolbox. Assignment therefore applies to port 1 + 2 (G1), 3 + 4 (G2) etc. In this sense, you will find ten 'groups' with two ports each on the front panel. The display shows at the top left which group you have selected, in this case G1.



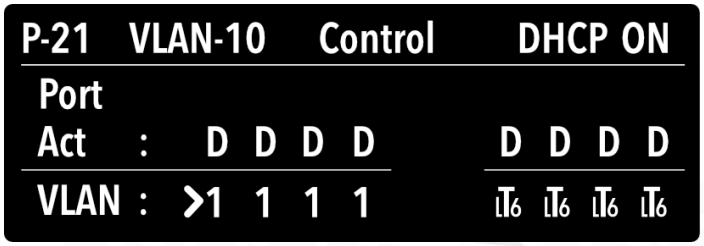
Rotate the data button to move the cursor in the display to the VLAN line (bottom) until it reaches the desired port. The corresponding LED flashes.

Press the data button and rotate it to select the desired VLAN. The left LED above the port in question changes color. This color corresponds to that of the VLAN you have selected (see table on previous page).

As soon as the port is active, the right LED turns green. When power over ethernet (PoE) is active, the right LED turns orange. This LED flashes white when a port load of 85% is exceeded.

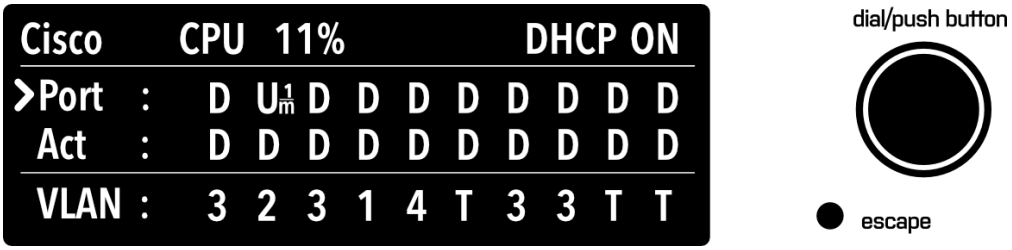
Rear Ethernet ports + fiber ports

When the cursor is moved past the last group (G-10), a new screen opens with access to the four Ethernet ports on the back of the VLAN toolbox 24-4 and the four fiber ports. At the top left, the display shows which port you have selected: P-21 to P-24 for the four Ethernet ports on the back and F-1 to F-4 for the four fiber ports (fiber).



Port status

The display shows the status of each port.



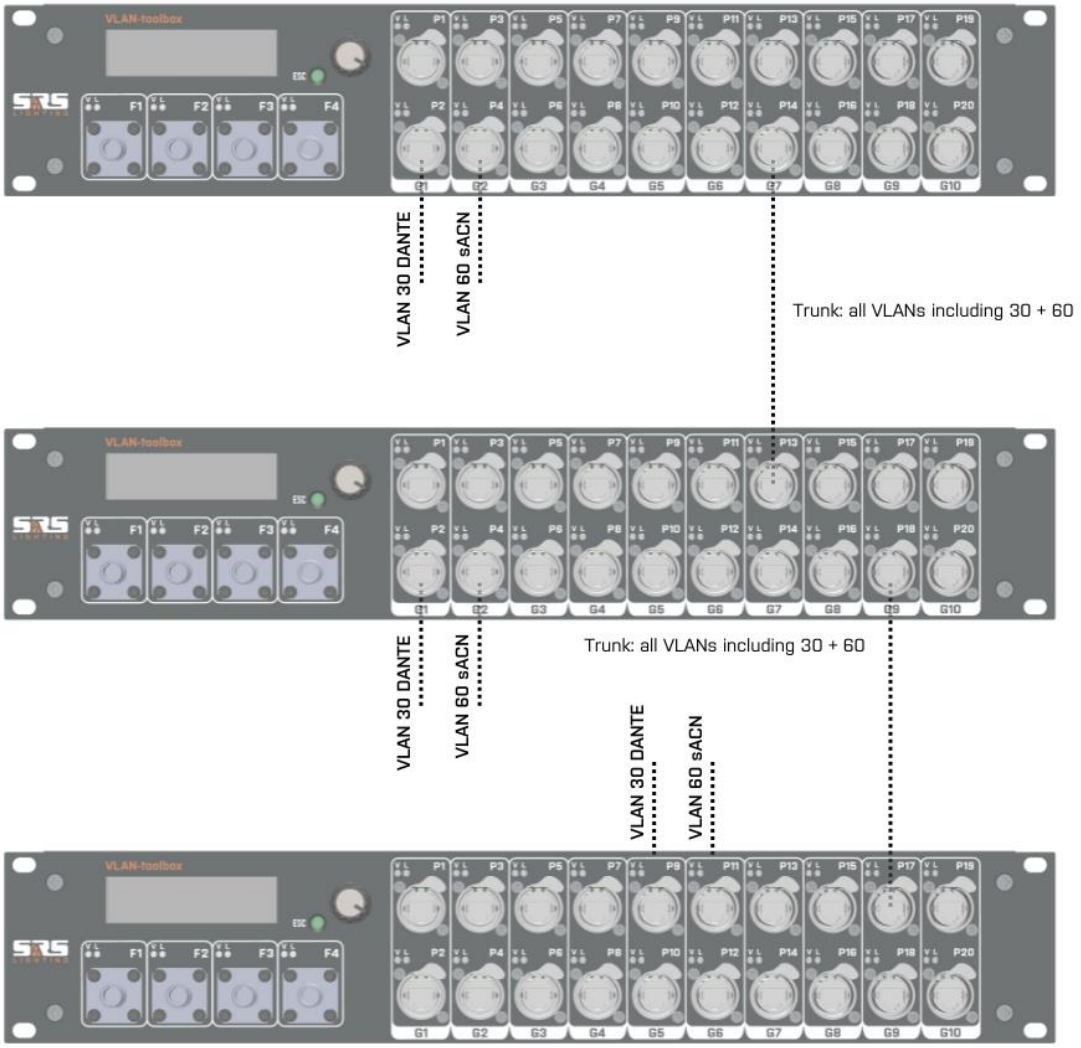
In the above screen, port 3 (of group 2) is active (Up) and the rest is inactive (Down). This port operates at a speed of 100Mbit/s. Trunking (T) has been selected for ports 11 + 12 (group 6), 17 + 18 (group 8) and port 19 + 20 (group 10).

When resetting the VLAN toolbox to the factory settings, all Ethernet ports VLAN-10 (1) and port 9/10 become trunking (T).

Using trunking (T)

Instead of assigning a port to a VLAN, you can also opt for trunking. A port that is designated as a trunking port transports all VLANs. This is ideal for transporting data from one switch to another. The second switch can then separate the data stream, after which the original VLANs can be assigned to the desired ports again.

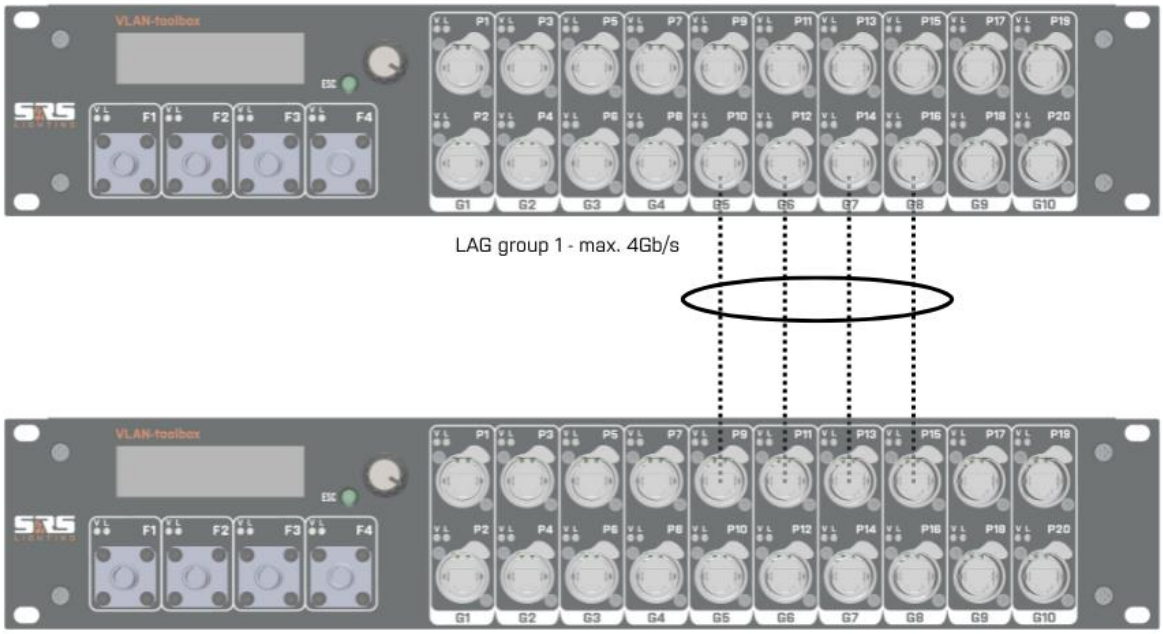
An advantage of trunks, for example, is that the cabling can be simplified and multiple VLANs (separate data) can be transported over one cable and, in the case of fiber optic connections, can be moved at high speeds over considerable distances.



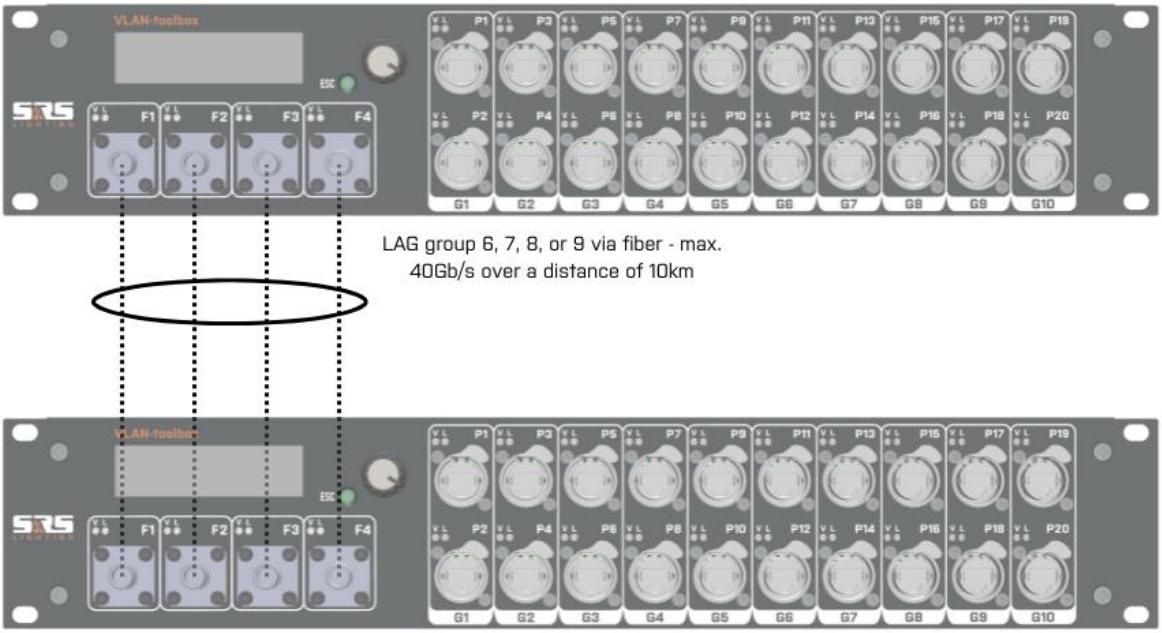
Trunk-groups (LAG's)

You can also select a trunk group in the VLAN-toolbox. This way you can use multiple ports to transport the data, which allows you to add the bandwidth (Gb/s) of the number of ports together, which increases the speed proportionally. You can also create redundancy, so that the data is not interrupted if one of the data lines is unexpectedly broken. The VLAN-toolbox uses LAG's (Link Aggregation Group) for this.

Trunk	Ethernet 1Gb/s
Trunk LAG 1-4	Ethernet 1Gb/s (group 1-4)
Trunk LAG 5-6	Fiber 1Gb/s (group 5-6)
Trunk LAG 7-8	Fiber 10Gb/s (group 7-8)



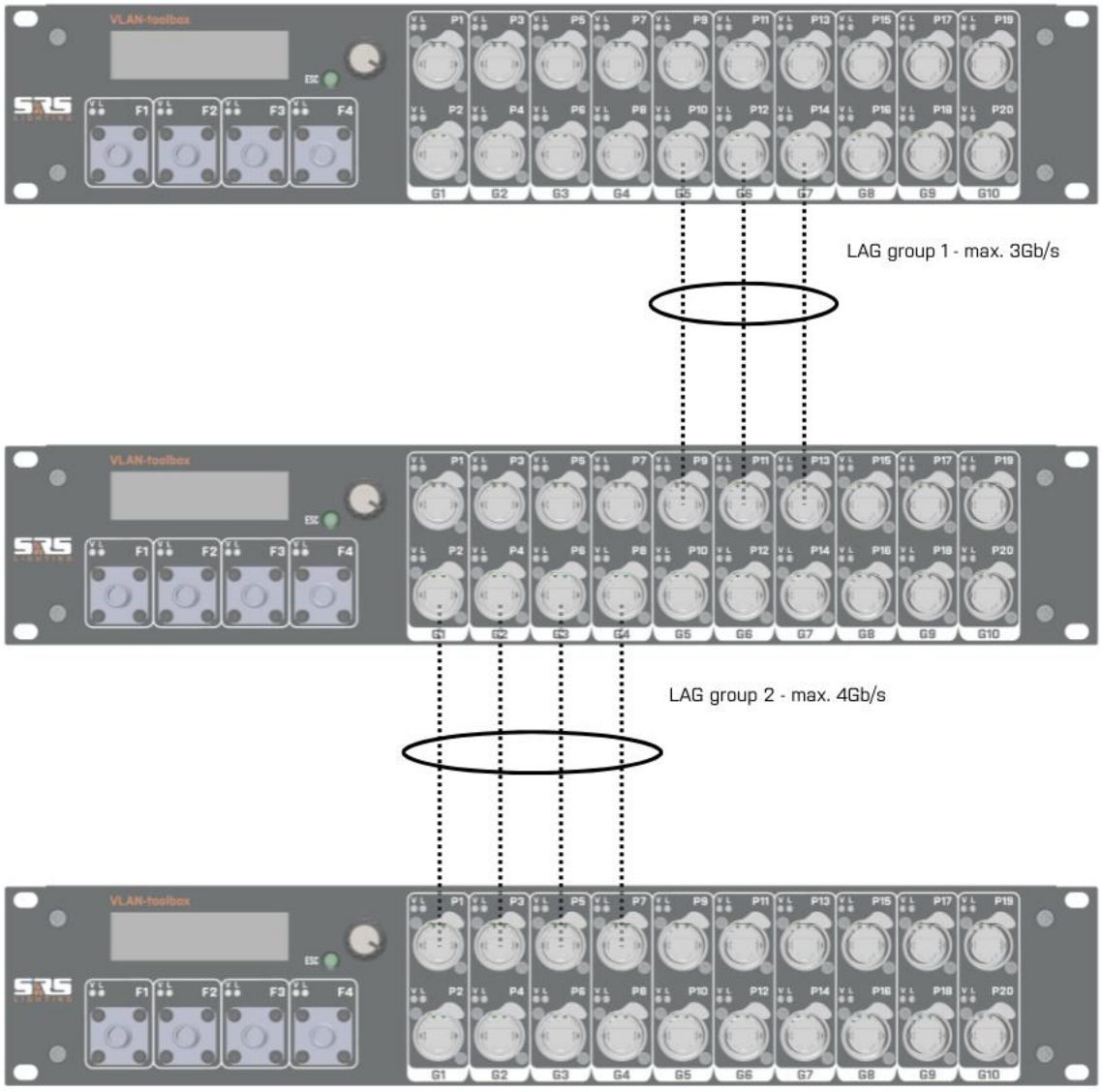
In the VLAN-toolbox 24-4 you can assign the ports with fiber connections (25, 26, 27 and 28) to LAG groups 5, 6, 7 and 8. The advantage of the fiber ports is that with four ports a data speed of 40Gb/s can be achieved simultaneously over a distance of 10 kilometers.



LAG's in between switches

Please note that a LAG group can only be used for data transport between two switches. For example, if you use LAG group 1 between two switches and then want to transfer the data to a third switch, use LAG group 2 for this.

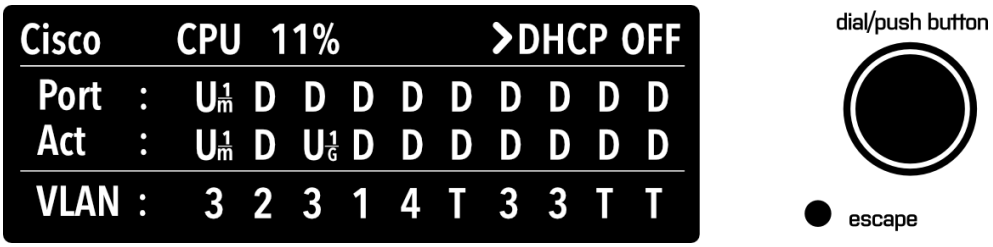
Trunk	Ethernet 1Gb/s
Trunk LAG 1-4	Ethernet 1Gb/s (group 1-4)
Trunk LAG 5-6	Fiber 1Gb/s (group 5-6)
Trunk LAG 7-8	Fiber 10Gb/s (group 7-8)



Enable DHCP server

The VLAN-toolbox can distribute IP addresses to devices connected to it, assuming that the device in question does not have a static IP address. To do this, the DHCP server must be enabled, if it is not already enabled. Make sure that there is never more than one DHCP server active within a network.

Rotate the data knob to move the cursor in the display to DHCP (top line).



Press the data button to select DHCP function.

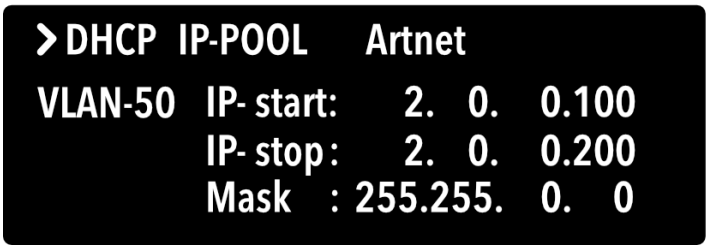
Rotate the data button to turn DHCP function ON or OFF.

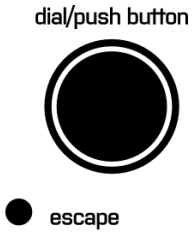
Assign DHCP server IP range to VLAN

You can determine the range within which the DHCP server distributes IP addresses per VLAN.

Rotate the data button to place the cursor on the bottom line at the VLAN field.

Press the data button to open the screen.





Rotate the data knob to select the VLAN for which you want to set the DHCP range.

Press the data knob to move the cursor to the value you want to change.

Rotate the data knob to adjust the value.

Each time you press the data knob, the cursor jumps to the next value you can adjust.

Make sure that the DHCP pool ranges of the different VLANs do not overlap.

Permanent location IP (equipped with DHCP)			Subnet
DHCP			DHCP Range
VLAN-1	From	To	
VLAN-10* Control-1	192 168 10 201	192 168 10 250	255 255 255 0
VLAN-20* Audio-oIP	192 168 30 201	192 168 30 250	255 255 255 0
VLAN-30* Dante-Pri	169 254 100 5	169 254 100 250	255 255 0 0
VLAN-40* Dante-sec	172 31 100 5	172 31 100 250	255 255 0 0
VLAN-50* Artnet	2 0 100 5	2 0 100 250	255 255 0 0
VLAN-60* sACN**	10 101 100 5	10 101 100 250	255 255 0 0
VLAN-70* Light-oIP	10 102 100 5	10 102 100 250	255 255 0 0
VLAN-80* Video-oIP	192 168 168 201	192 168 168 250	255 255 255 0
VLAN-90* Intercom	192 168 90 201	192 168 90 250	255 255 255 0

* *Intermediate VLAN for optional internal use (11 to 19, 21 to 29 etc.)*
** *Facilitating/permanant location > universe 101 and up*
** *Universe 101 virtual master fader / Universe 102 power switch*
Gateway (VLAN IP - XXX.XXX.XXX.001)

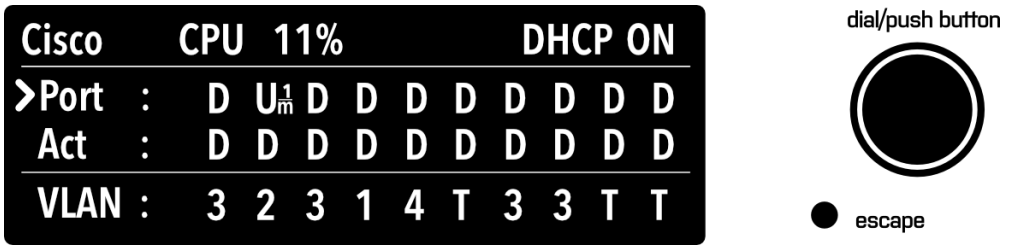
Visiting company		
DHCP		
VLAN-1	From	To
VLAN-10* Control-1	192 168 10 81	192 168 10 100
VLAN-20* Audio-oIP	192 168 30 81	192 168 30 100
VLAN-30* Dante-Pri	169 254 250 5	169 254 250 250
VLAN-40* Dante-sec	172 31 250 5	172 31 250 250
VLAN-50* Artnet	2 0 250 5	2 0 250 250
VLAN-60* sACN**	10 101 250 5	10 101 250 250
VLAN-70* Light-oIP	10 102 250 5	10 102 250 250
VLAN-80* Video-oIP	192 168 168 81	192 168 168 100
VLAN-90* Intercom	192 168 90 81	192 168 90 100

** *Preferred use for visiting company universe 1 to 100*

Request port information

You can request information from individual ports, which provides insight into the status of the port (down or data speed), the power consumption when using power over ethernet (PoE), the load on the port in question (TX / RX) and to which VLAN the port is assigned. There is also a cable tester.

Rotate the data button to move the cursor to the second line before the Port field.



Press the data button to open the Port Info screen.

Rotate the data knob to move the cursor in the display to the Port line (second line).

Press the data knob

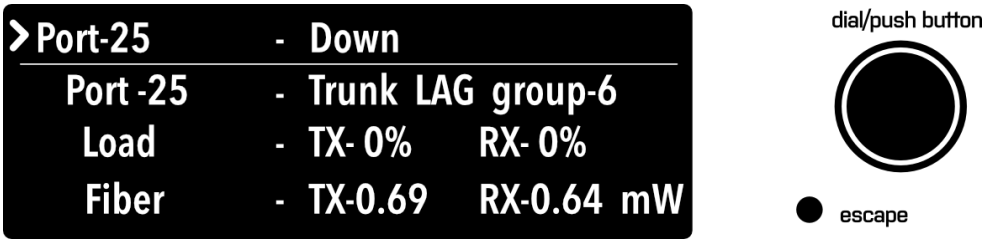
Rotate the data knob to select the desired port number.

Press the data knob to move the cursor to the desired function.

- Port-1 to 24: rotate the data button to switch VLAN
- Test: rotate the data button to select the cable test (Cable test), press the data button to start the test. The test gives the following results:

  Cable okay – cable okay + display cable length (m)
  No cable – no cable connected
  Impedance – impedance error
  Open cable – interrupted connection
  Short cable – short circuit (wire pair)
  Not tested – test not performed

For the fiber optic ports (25 to 28), the port information screen also shows the power that the respective port is outputting and receiving.



Feedback (notifications)

The VLAN-toolbox provides feedback on the display in specific cases. These are generally warnings when an inconvenient or unusable setting has been made or when (too) large amounts of data are being transported via a port.

When activating a port, when it changes to the UP status:

- Err Duplicate-IP: there are two identical IP addresses on the network or two DHCP servers are active.
- Vlan-mismatch Pxx : two different VLANs are connected to each other via port(xx)
- STP Blocking: a loop has occurred on the port in question.

When setting the IP range for the DHCP server:

- ILLEGAL: an error was made when setting the range in relation to the subnet mask. The original value is reset.
- OVERLAP: there is an overlap in the IP range just set for the DHCP server and a previously set range. The original value is reset.

Initialize

When you hold down the escape key, a menu with four choices will appear after a while.

Rotate the data button to move the cursor to the desired option. Press the data button to confirm your choice. The VLAN-toolbox will then perform the selected action.

- Reconfig switch: loads the settings you have made back into the switch
- Factory setting: resets the switch to the factory settings. This will cause all settings you have made to be lost.
- Test LED: tests the LEDs on the front panel. If all LEDs are OK, they will all light up white at their maximum intensity.

The Reconfig switch and Factory setting functions can take some time. Reconfig switch has a downtime of ±4 minutes as a result. Please take this into account.

Appendix

Table IP range fixed location

Fixed location IP (DHCP enabled)																					
		Vast location																		SUBNET	
		Static								DHCP								DHCP RANGE	
VLAN-1		FROM				TO				FROM				TO					
VLAN-10* Control-1		192	168	10	101	192	168	10	200	192	168	10	201	192	168	10	250	255 255 255	0
VLAN-20* Audio-oIP		192	168	30	101	192	168	30	200	192	168	30	201	192	168	30	250	255 255 255	0
VLAN-30* Dante-Pri		169	254	11	5	169	254	100	250	169	254	101	5	169	254	101	250	255 255 0	0
VLAN-40* Dante-sec		172	31	11	5	172	31	100	250	172	31	101	5	172	31	101	250	255 255 0	0
VLAN-50* Artnet		2	0	11	5	2	0	100	250	2	0	101	5	2	0	101	250	255 255 0	0
VLAN-60* sACN**		10	101	11	5	10	101	100	250	10	101	101	5	10	101	101	250	255 255 0	0
VLAN-70* Light-oIP		10	102	11	5	10	102	100	250	10	102	101	5	10	102	101	250	255 255 0	0
VLAN-80* Video-oIP		192	168	168	101	192	168	168	200	192	168	168	201	192	168	168	250	255 255 255	0
VLAN-90* Intercom		192	168	90	101	192	168	90	200	192	168	90	201	192	168	90	250	255 255 255	0

* Intermediate VLAN for optional internal use (11 to 19, 21 to 29 etc.)

** Facilitating/fixed location > universe 101 and up

** Universe 101 virtual master fader / universe 102 power switch

Gateway (VLAN IP - XXX.XXX.XXX.001)

Tabel IP-range visiting company

Visiting company

	IP range visiting Static								DHCP							
	FROM				TO				FROM				TO			
VLAN-10* Control-1	192	168	10	5	192	168	10	80	192	168	10	81	192	168	10	100
VLAN-20* Audio-oIP	192	168	30	5	192	168	30	80	192	168	30	81	192	168	30	100
VLAN-30* Dante-Pri	169	254	101	5	169	254	250	250	169	254	251	101	169	254	250	250
VLAN-40* Dante-sec	172	31	101	5	172	31	250	250	172	31	251	101	172	31	250	250
VLAN-50* Artnet	2	0	101	5	2	0	250	250	2	0	251	101	2	0	250	250
VLAN-60* sACN**	10	101	101	5	10	101	250	250	10	101	251	101	10	101	250	250
	universe 0 to 100															
VLAN-70* Light-oIP	10	102	101	5	10	102	250	250	10	102	251	101	10	255	250	250
VLAN-80* Video-oIP	192	168	168	5	192	168	168	80	192	168	168	81	192	168	168	100
VLAN-90* Intercom	192	168	90	5	192	168	90	80	192	168	90	81	192	168	90	100

**Preference for visiting party, universe 1 to 101

Trunking

Trunk	-	Vlan 2-5,10,20,30,40,50,60,70,80,90
Trunk LAG-1	LAG1 Ethernet 1Gb/s	Vlan 2-5,10,20,30,40,50,60,70,80,90
Trunk LAG-2	LAG2 Ethernet 1Gb/s	Vlan 2-5,10,20,30,40,50,60,70,80,90
Trunk LAG-3	LAG3 Ethernet 1Gb/s	Vlan 2-5,10,20,30,40,50,60,70,80,90
Trunk LAG-4	LAG4 Ethernet 1Gb/s	Vlan 2-5,10,20,30,40,50,60,70,80,90
Trunk LAG-5	LAG5 Fiber 1Gb/s	Vlan 2-5,10,20,30,40,50,60,70,80,90
Trunk LAG-6	LAG6 Fiber 1Gb/s	Vlan 2-5,10,20,30,40,50,60,70,80,90
Trunk LAG-7*	LAG7 Fiber 10Gb/s	Vlan 2-5,10,20,30,40,50,60,70,80,90
Trunk LAG-8*	LAG8 Fiber 10Gb/s	Vlan 2-5,10,20,30,40,50,60,70,80,90

* Only available on VLAN Toolbox 24-4

Warranty

SRS LIGHTING VLAN-toolbox 24-4 is covered by a 2-year manufacturer's warranty. For extended warranty conditions, please contact the manufacturer at sales@srs-group.com.

The warranty covers the original factory installed components of the controller and their correct functioning.

The warranty voids if any part or replacement component is installed or modified without authorization from the manufacturer and/or the internal circuit is tampered or modified and/or the controller is operated outside of normal using conditions – electrical power supply is not conform or there is connection error or mechanical damage of controller, including overload and improper use.

The manufacturer always helps with the repair of each unit.

Declaration of conformity

According to the specification of Low Voltage Directive 2014/35/EU, Annex IV:

Name of producer: SRS Group s.r.o.
Address of producer: Pri Majeri 4, SK- 831 07 Bratislava, Slovak Republic
www.srs-group.com / sales@srs-group.com, +421232661800

Declares that the product

Name of product: SRS LIGHTING VLAN-toolbox 24-4
Types: VLAN-toolbox 24-4, VLAN-toolbox 24-4B, VLAN-toolbox 24-4-LC, VLAN-toolbox 24-4B-LC, VLAN-toolbox 24-4-OC, VLAN-toolbox 24-4B-OC

Are in compliance with the

Low Voltage directive:	2014/35/EC
EMC directive	2014/30/EC
Restriction of the use of certain hazardous substances:	2011/65/EU

Applied harmonized standards (or parts/clauses) in particular:

EN ISO 12100:2010	IEC 364	IEC 946-5-1
EN 60670-24:2014/A1	IEC 60204-1	

Bratislava, 1 September 2024

SRS Group, s.r.o.

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