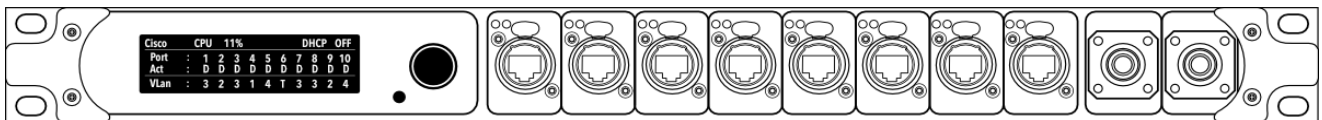




Quick guide SRS Lighting VLAN-toolbox

Version 1.0



SRS Lighting VLAN-toolbox 8 - 2

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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.

Highlights

- 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.
- Simple, reliable way to apply trunking for data transport between switches.
- Simple, reliable way to apply link aggregation (linked ports) for high data speeds and/or redundancy.
- No in-depth knowledge of data networks and IT in general required.
- Prevents incorrect settings that can lead to blocked access to the switch's controls.
- Standalone use; no laptop or other external equipment required to make settings.
- Monitor for power consumption when applying Power over Ethernet (PoE)
- Monitor for port load
- Cable tester



Start up

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

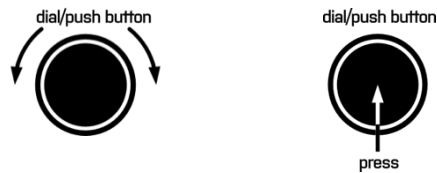


Please note that this procedure takes **±4 minutes**. The progress bar at the bottom of the display shows that the process is progressing.

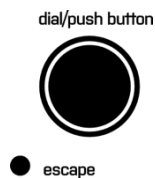
Controls

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

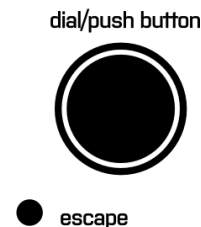
Application			
Vlan-10	Control-1		
Vlan-20	Audio-oIP		
Vlan-30	Dante-Pri		
Vlan-40	Dante-Sec		
Vlan-50	Art-Net		
Vlan-60	sACN**		
Vlan-70	Light-oIP		
Vlan-80	Video-oIP		
Vlan-90	Intercom		
Trunk	Ethernet 1Gb/s		
Trunk LAG 1-4	Ethernet 1Gb/s (group1-4)		
Trunk LAG 5-6	Fiber 1Gb/s (group5-6)		

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

Assigning VLAN's 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.

Cisco	CPU	11%	DHCP ON							
Port :	1	2	3	4	5	6	7	8	9	10
Act :	D	D	D	D	D	D	D	D	D	D
Vlan :	>3	2	3	1	4	T	3	3	T	T



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.

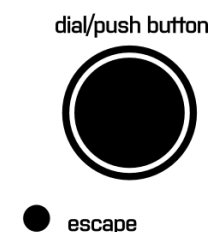
Press the data button and rotate it to select the desired VLAN. The left LED above the port in question changes color. This color corresponds to that of the VLAN you have selected (see table on previous page).

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.

Port status

The display shows the status of the relevant port on the second line below the port number.

Cisco	CPU	11%	>DHCP OFF							
Port :	1	2	3	4	5	6	7	8	9	10
Act :	U _m ¹	D	U _g ¹	D	D	D	D	D	D	D
Vlan :	3	2	3	1	4	T	3	3	T	T



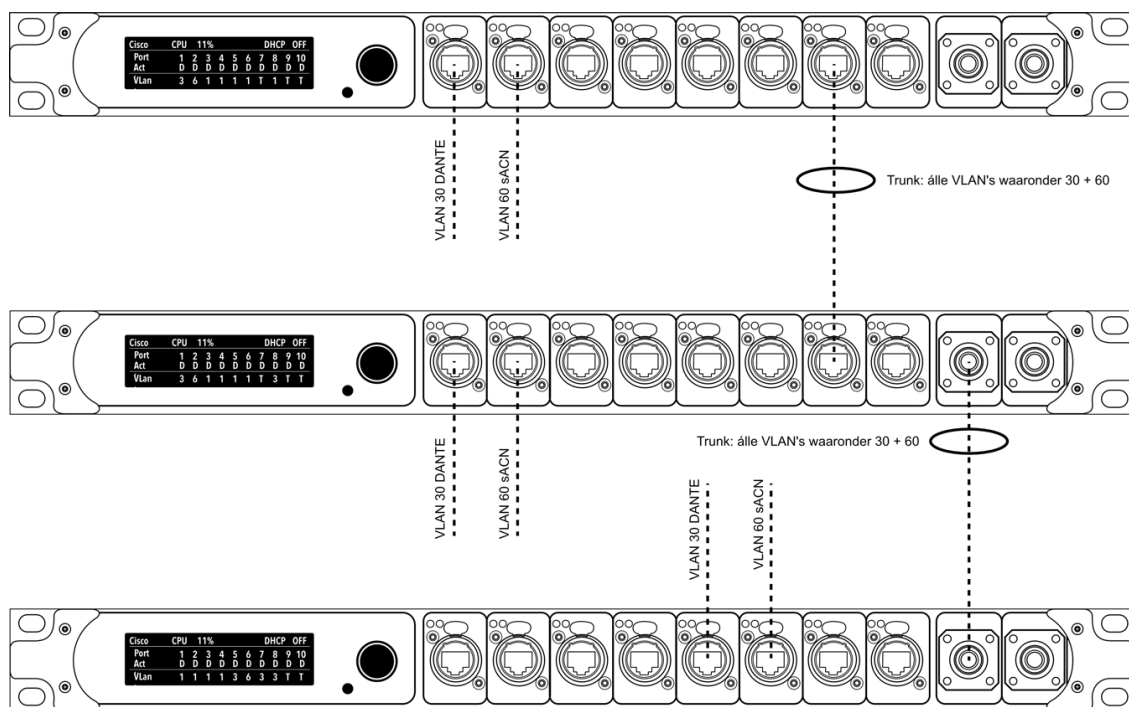
In the above screen, ports 1 and 3 are active (Up) and the others are inactive (Down). Port 1 operates at a speed of 100Mbit/s and port 3 at 1Gbit/s. Trunking (T) has been selected for port 6.

When resetting the VLAN-toolbox to factory settings, all Ethernet ports are routed to VLAN 10 (1) and the fiber connections are routed to 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 VLAN's. This is ideal for transporting data from one switch to another. The second switch can then separate the data stream, after which the original VLAN's can be assigned to the desired ports again.

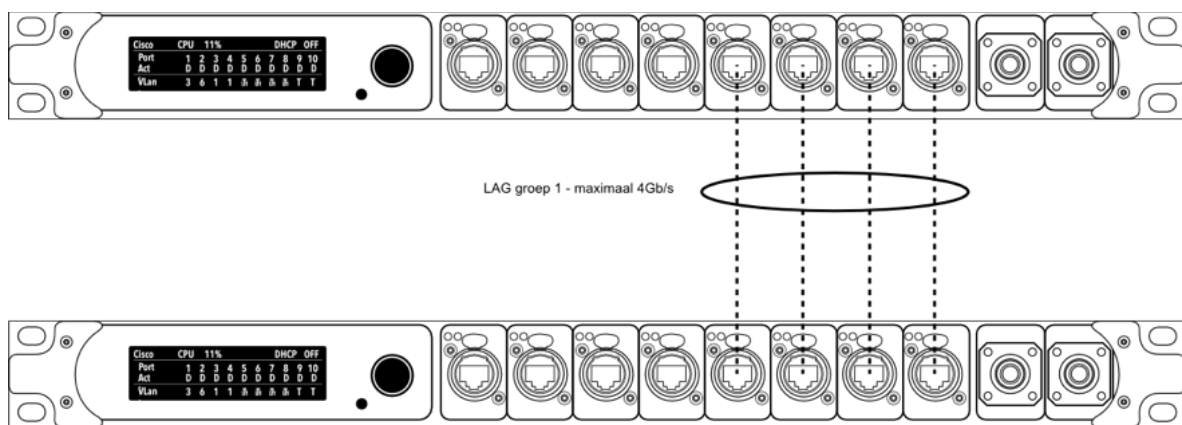
An advantage of trunks, for example, is that the cabling can be simplified and multiple VLAN's (separate data) can be transported over one cable and, in the case of fiber optic connections, can be moved at high speeds over considerable distances.



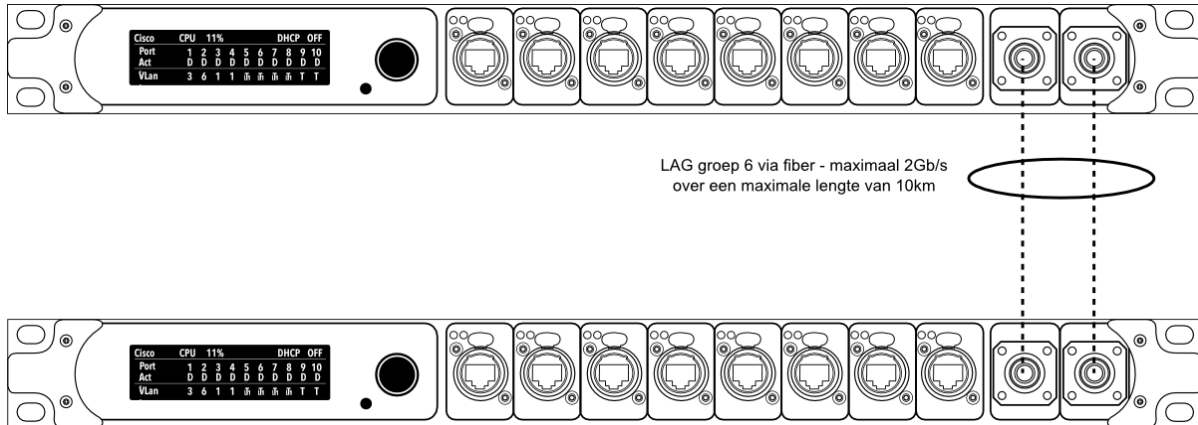
Trunk-groups (LAG's)

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
Trunk LAG 5-6	Fiber 1Gb/s



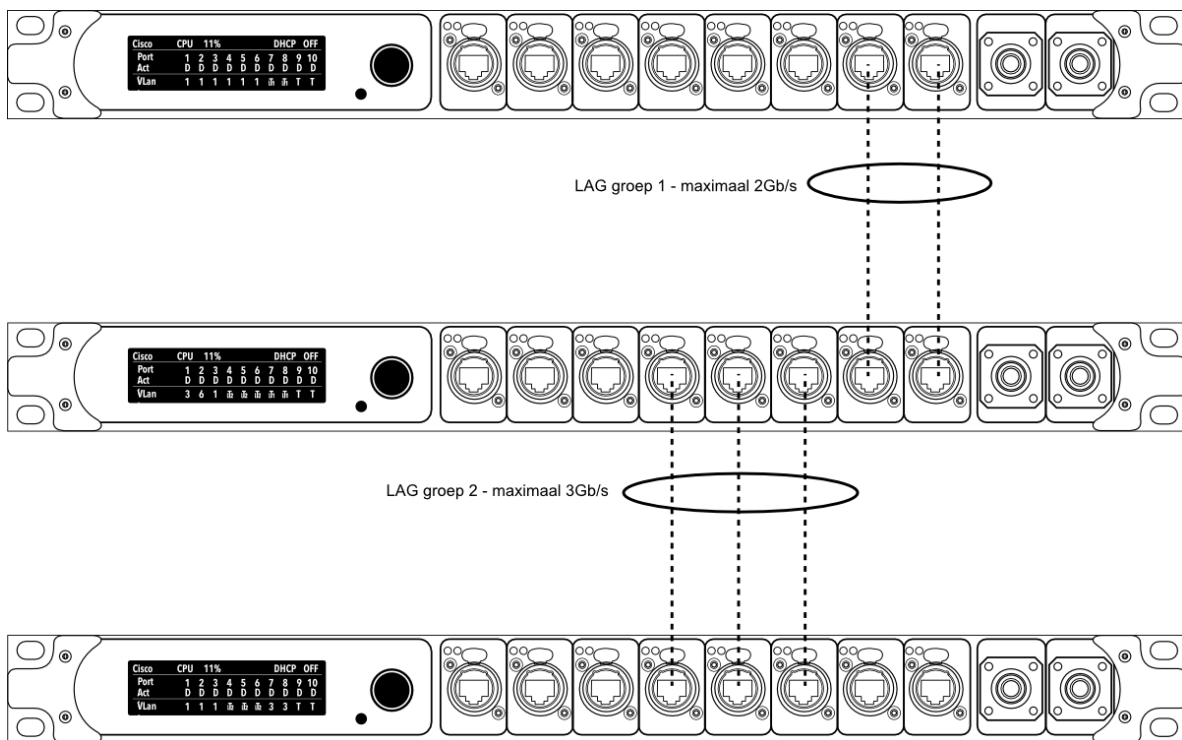
In the VLAN-toolbox 8 – 2 you can assign the ports with fiber connections (9 and 10) to LAG group 5 or 6. The advantage of the fiber ports is that with two ports a data speed of 2Gb/s can be achieved over a distance of 10 kilometers.



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)



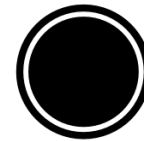
Enable DHCP server

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).

Cisco	CPU	11%								>DHCP	OFF
Port	:	1	2	3	4	5	6	7	8	9	10
Act	:	U _m ¹	D	U _c ¹	D	D	D	D	D	D	D
Vlan	:	3	2	3	1	4	T	3	3	T	T

dial/push button



● escape

Press the data button to select DHCP function.

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

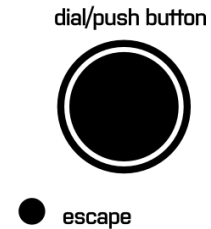
Assign DHCP server IP range to VLAN

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.

```

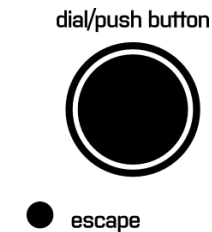
Cisco      CPU 11%          DHCP ON
-----
Port :    1 2 3 4 5 6 7 8 9 10
Act  :    D D D D D D D D D D
>Vlan :    3 2 3 1 4 T 3 3 T T
  
```



Press the data button to open the screen.

```

> DHCP IP-POOL  Arnet
VLAN-50 IP- start:  2. 0. 0.100
          IP- stop:  2. 0. 0.200
          Mask  : 255.255. 0. 0
  
```



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 VLAN's do not overlap.

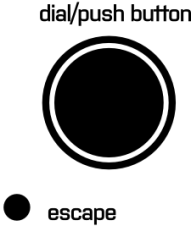
	DHCP							
	FROM				TO			
VLAN-10 Control-1	192	168	10	201	192	168	10	250
VLAN-20 Audio-oIP	192	168	30	201	192	168	30	250
VLAN-30 Dante-Pri	169	254	101	5	169	254	101	250
VLAN-40 Dante-sec	172	31	101	5	172	31	101	250
VLAN-50 Artnet	2	0	101	5	2	0	101	250
VLAN-60 sACN	10	101	101	5	10	101	101	250
VLAN-70 Light-oIP	10	102	101	5	10	102	101	250
VLAN-80 Video-oIP	192	168	168	201	192	168	168	250
VLAN-90 Intercom	192	168	90	201	192	168	90	250

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.

Cisco	CPU	11%	DHCP ON								
>Port	:	1	2	3	4	5	6	7	8	9	10
Act	:	D	D	D	D	D	D	D	D	D	D
Vlan	:	3	2	3	1	4	T	3	3	T	T



Press the data button to open the Port Info screen.

>Port-1	-	Down	PoE 0.3W
Port -1	-	Trunk LAG-1	
Load	-	TX-0% RX-0%	
Test	-	No	



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

Press the data knob

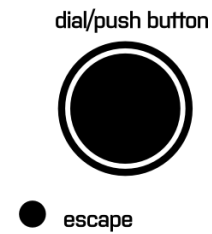
Rotate the data knob to select the desired port number.

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

- Port-1 to 8: 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 (9 and 10), the port information screen also shows the power that the respective port is outputting and receiving.

> Port-10	- Down		
Port -10	- Trunk LAG group-6		
Load	- TX- 0%	RX- 0%	
Fiber	- TX-0.69	RX-0.64 mW	



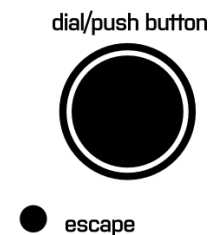
Feedback (notifications)

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.

During use:

- The link LEDs (L) flash red when the port load is $\geq 85\%$ (TX and/or RX).
- Two bars next to the port number show the activity (TX and/or RX) on that port.

Cisco	CPU	11%	>DHCP ON							
Port :	1	2	3	4	5	6	7	8	9	10
Act :	U _G	D	U _G	D	D	D	D	U _G	D	D
Vlan :	1	2	1	1	1	1	1	1	T	T



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

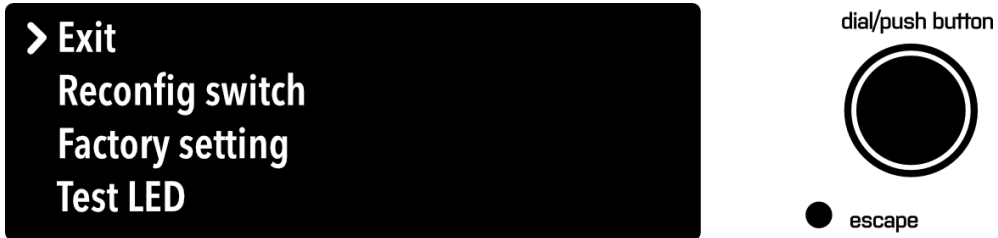
- Err Duplicate-IP: there are two identical IP addresses on the network or two DHCP servers are active.
- Vlan-mismatch Pxx : two different V-LANs are connected to each other via port(xx)
- STP Blocking: a loop has occurred on the port in question.

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)											SUBNET									
VLAN-1	Vast location										DHCP RANGE									
	Static					DHCP														
	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 visting company

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

**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