LIGHTWARE UCX-2×1-HC30 Matrices and Switchers User Guide

Quick Start Guide
UCX-2×1-HC30, UCX-2×2-H30, UCX-4×2-HC30, UCX-4×2-HC30D

Contents

Important Safety Instructions

Please read the supplied safety instruction document before using the product and keep it available for future reference.

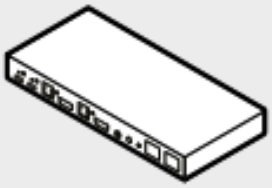
Introduction

Lightware's universal switcher enhances and extends the possibilities of a meeting room and allows meeting participants to easily use their own devices such as laptops, and preferred video conference platforms while also utilizing the available assets of the meeting space, just like the HDMI displays, room cameras, and other USB peripherals.

The device utilizes the USB-C connectivity for a simplified transmission of 4K video, audio, control signals and power, and allows data speeds of up to 5 Gbps under the USB 3.1 Gen1 and allowing video resolution capabilities up to 4K@60Hz at 4:4:4.

The UCX-4×2-HC30D model also thrives when it comes to audio capabilities, offering analog audio de-embedding feature as well as support for DANTE/AES67 network connection to send DANTE/AES67 audio stream directly to a dedicated audio system.

Box Contents



Switcher unit

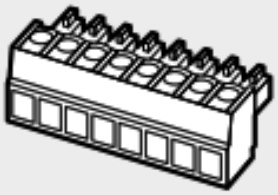
Safety and warranty info, Quick Start Guide

24V power adaptor with IEC power cable

2 pcs M3x4 flat head screw

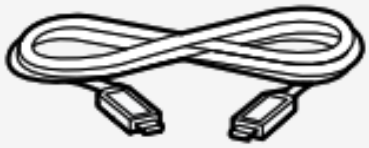
Phoenix® Combicon 3-pole connector

Phoenix® Combicon 5-pole connector



Phoenix® Combicon 8-pole connector

Phoenix® Combicon 3-pole male connector

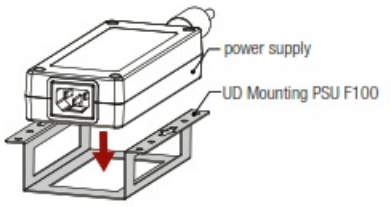
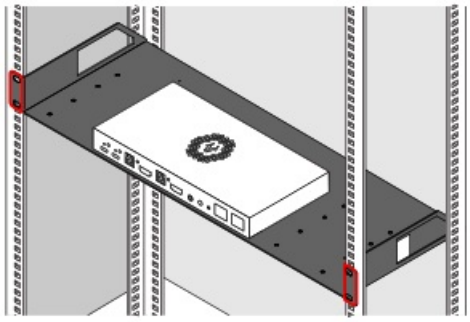


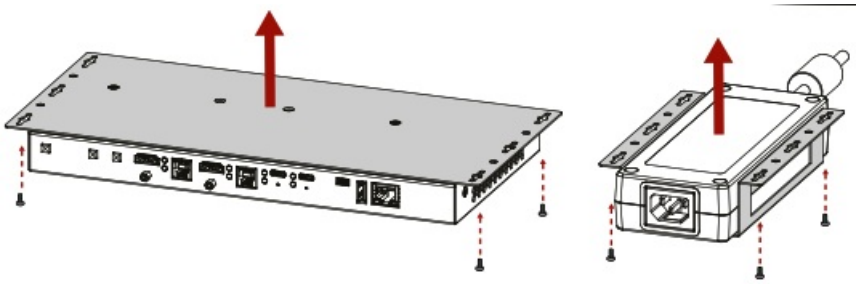
USB 3.1 Type C (USB-C) to Type C (USB-C) Cable, 1m*

* USB Type-C cable is not supplied with the UCX-2×2-H30 model.

Mounting the Device (with optionally available accessories)

The examples demonstrate the applications of UD Kit accessories:

Insert the power supply into UD Mounting PSU F100.  	Fix the UD Mounting plate F100 to the switcher by fastening the screws (these 2pcs screws are supplied with the switcher). 



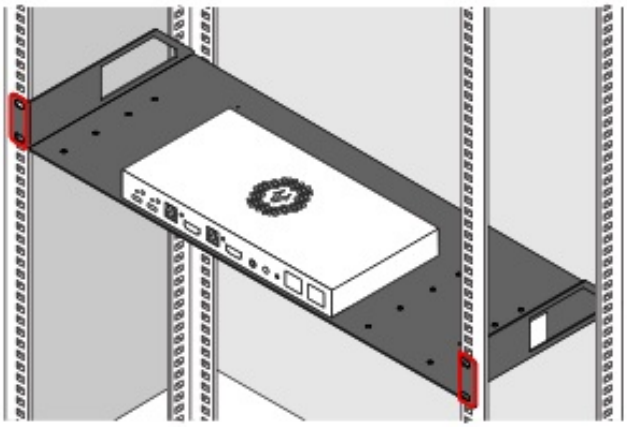
⚠UD-Mounting plate F100 and UD Mounting PSU F100 do not contain the fixing AV Port Diagram (UCX-4×2-HC30D) screws, they can be purchased from the local hardware store. 2x4pcs M3-M5 metric or Audio Cable Wiring Guide wood screws needed, M3 size is recommended.

⚠To ensure the correct ventilation and avoid overheating, insert the switcher face down to the UD KIT to keep the ventilation holes free.

Mounting the Device with UD Kit Rack Shelf (with optionally available accessories)

The example on the right demonstrates the applications of UD Kit Rack Shelf accessories.

⚠ ¢ For fixing the device to a Rack shelf, use the screw supplied with the switcher. Longer screw may touch internal parts and harm the device.

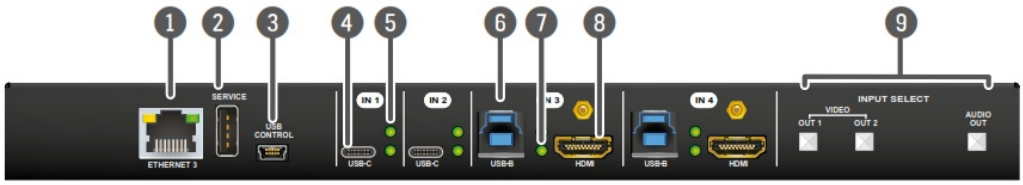


Factory Default Settings

To restore factory default values, do the following steps: Make sure the switcher is powered off. Press and keep pressing the VIDEO OUT2 (VIDEO IN2 button in UCX-2×1-HC30 model) button. Power on the switcher while the VIDEO OUT2* button is being pressed for 10 seconds. The device restores the factory default settings and reboots.

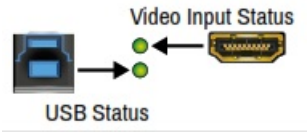
IP address	Dynamic (DHCP is enabled)
Hostname	lightware-cserialno>
Video Crosspoint setting	11 on 01, 13 on 02
HDCP mode (in) – UCX-4×2-HC30(D)	IL 12: HDCP 1.4;13,14: HDCP 2.2
HDCP mode (in) UCX-2×1-HC30, UCX-2×2-H30	11,12: HDCP 2.2
HDCP mode (out)	Auto
Signal type	Auto
Emulated EDID	F47- (Universal HDMI with PCM audio)
Audio Crosspoint setting	11 on 03 (UCX-2×1-HC30: 11 on 02)
Analog audio output levels	Volume (dB): 0.00; Balance: 0 (center)
Video Autoselect	Follow video 01
USB-C Power Limit (UCX-2×1-HC30)	60W output power
USB-C Power Limit (other models)	Equal output power
DP Altemate Mode Policy	Auto
Port Power Role	Dual Role
USB Autoselect	Follow video 01
DI-D4 Power 5V Mode	Auto
RS-232 port setting	9600 BAUD, 8, N, 1
RS-232 serial over IP	Enabled
HTTP, HTTPS	Enabled
HTTP, HTTPS authentication	Disabled

Front View (UCX-4×2-HC30D)

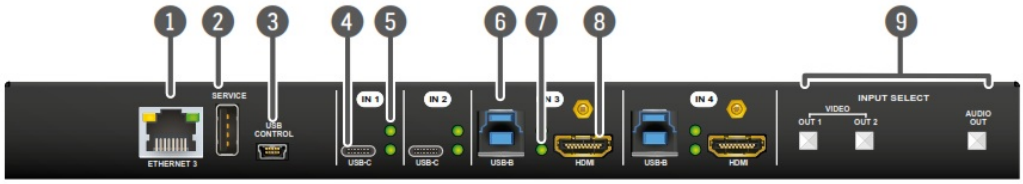


1 Configurable Ethernet Port	RJ45 connector for configurable 100Base-T Ethernet communication.
2 USB-A Port	The service function will be added by a future firmware updates.
3 USB mini-B Port	The LW3 control function will be added by the future firmware upgrade.
4 USB-C Port	Displayport 1.2 and USB 3.1 Gen1 connections, AV signal can be transferred up to a resolution of 4K@60Hz 4:4:4 and data speeds up to 5 Gbps with remote charging. Use cables certified for USB 3.1 Gen1 (5Gbps) and Displayport Alternate mode HBR2 (4×5.4Gbps) applications.
5 Video Input Status LEDs	See the details in the table on the right.
6 USB-B Port	Upstream ports for connecting USB host devices (e.g. computer).
7 USB Status LEDs	See the details in the table on the right.
8 HDMI Input Ports	HDMI input ports for sources. The applied cable shall not be longer than 5m (22AWG) when signal resolution is 4K. Use cables certified for HDMI 2.0 (3x6Gbps) applications.
9 Input Select Button	For more details about the button functionality, see the table on the right. When LEDs blink green three times after pressing the button, they show that the front panel lock is enabled.

Arrangement of the Status LEDs



Rear View (UCX-4×2-HC30D)



1 DC Input	The device can be powered by an external 120W pow er supply. Connect the output to the 2-pole Phoenix®c onnector. For more details, see powering options belo w.
2 USB-A Port	Downstream ports for connecting USB peripherals (e.g . camera, keyboard, multitouch display) with USB 3.1Gen1 data speed.
3 HDMI Output Ports	HDMI output ports for connecting to the sink devices.
4 Video Output Status LED	See the details in the table on the right.
5 Analog audio port	Audio output port (5-pole Phoenix) for the balanced an alog audio output signal. The signal is de-embedded fr om the selected video signal.
6 RS-232 port	3-pole Phoenix connector for bi-directional RS-232 co mmunication.
7 OCS sensor	3-pole Phoenix ® connector (male) for connecting an occupancy sensor. The port provides a 24V output volt age (50mA).
8 GPIO	8-pole Phoenix ® connector for configurable general p urpose. Max. input/output voltage is 5V, see the details on the next page.
9 Secure Control LAN	RJ45 connector for secure 100Base-T Ethernet comm unication.
q Utility AV LAN	RJ45 connector provides room utility Ethernet connection for e.g BYOD laptops.
w Dante ® Audio Output	In the UCX-4×2-HC30D model: the RJ45 connector for de-embedding the HDMI audio can be transmitted as a 2-channel Dante ® or AES67 source.

UCX-2×2-H30 model has no Utility AV LAN port.

⚠ Always use the supplied power supply. Warranty void if damage occurs due to use a different power source.

Powering Options
UCX series switchers are designed to provide power delivery for the connected device over the USC-C connectors. The following operation modes are available:

1. Charge one device on the chosen port with up to 60W. The other port can supply up to 5V/3A.
2. Charge one device with 30W (in this case, the other USB-C port can supply 30W or 5V/3A)

Power profiles can be set with Lightware Device Controller Software, REST API or with LW3 protocol commands.

Software Control – Using Lightware Device Controller (LDC)

The device can be controlled from a computer using the Lightware Device Controller software. The application is available at **www.lightware.com**, install it on a Windows PC or a macOS and connect to the device via LAN.

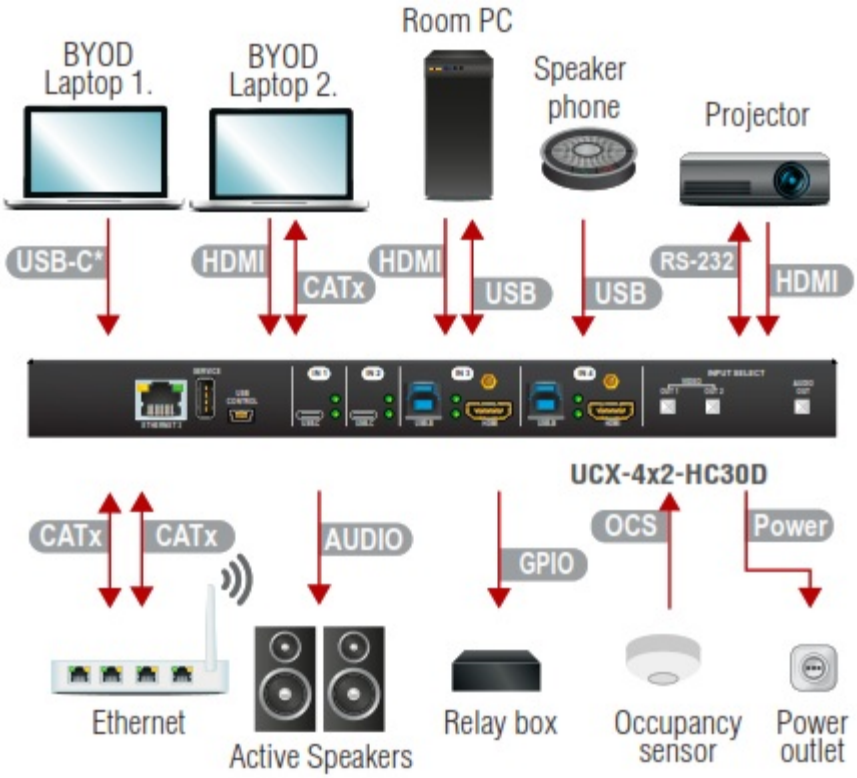
Firmware Upgrade

Lightware Device Updater2 (LDU2) is an easy and comfortable way to keep your device up-to-date. Establish the connection via Ethernet. Download and install LDU2 software from the company's website **www.lightware.com** where you can find the latest firmware package as well.

Button functionality

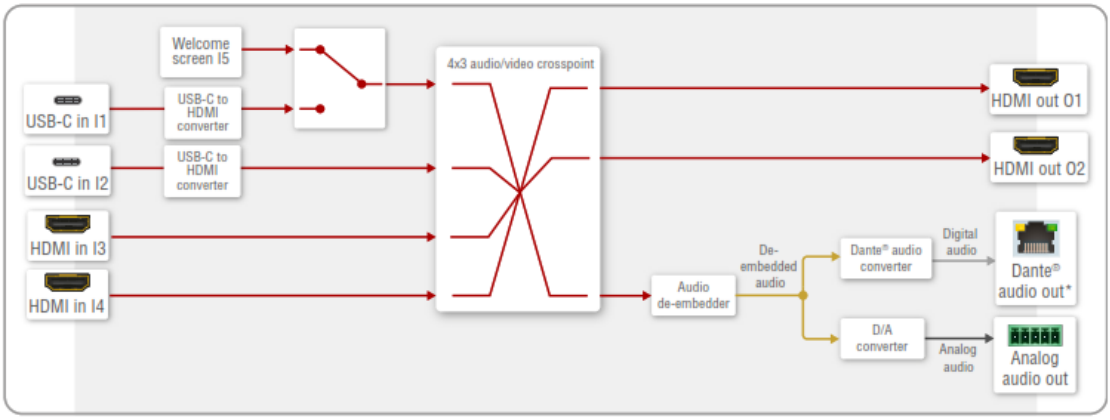
UCX-2×1-HC30
Use IN1 and IN2 buttons for selecting the video source. IN1 button switches the USB-C IN1 to the output, IN2 button switches the HDMI IN2 to the output.

Connecting Steps

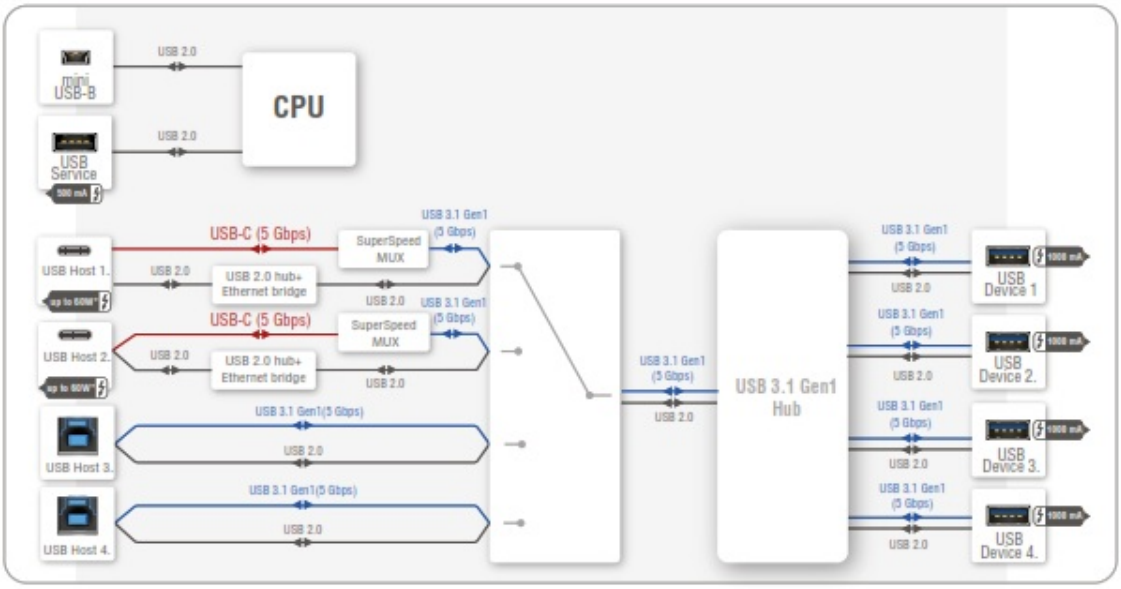


♦Connecting USB-B and HDMI ports to the same PC or laptop is recommended in case of I3 and I4 inputs. sensor outlet Active Speakers

AV Port Diagram (UCX-4×2-HC30D)

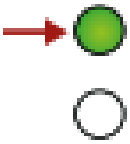
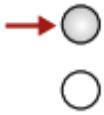
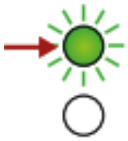


USB Port Diagram (UCX-4×2-HC30D)



♦For more details about the power delivery of the USB-C port see Powering Options section.

Front Panel LEDs

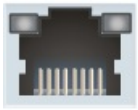
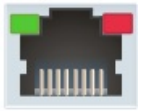
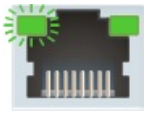
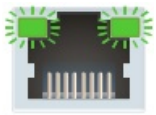
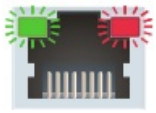
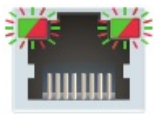
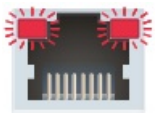
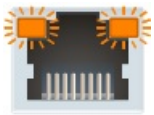
Video-Input Status LED (the upper one)		
	on	There is a valid video signal on this port.
	off	There is no valid video signal on thi s port.
	blink at once	The port is selected by a button pre ss.
USB Status LED (the below one)		
	on	The USB Host is connected and sel ected.
	off	No USB Host or deselected port.

Rear Panel LEDs

Video Output Status		
	on	The video signal is present.
	off	The signal is not present or muted.

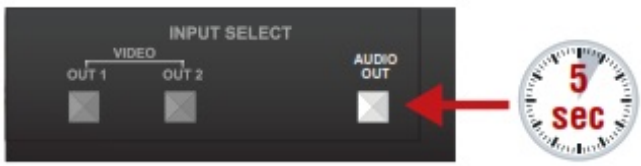
When Dark Mode is enabled, no LEDs are lit, even though the device is fully functional.

Dante ® Audio Out (in UCX-4×2-HC30D model)

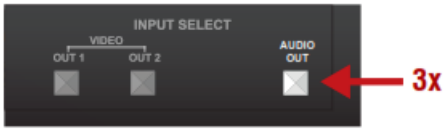
LED state	Left LED	Right LED	Function
	Off	Off	No power
	green	Solid red	Dante is booting
	Blinking green	Solid green	Slave with sync (normal o peration)
	Blinking green	Blinking green	Clock master (normal ope ration)
	Blinking green	Blinking red	Acquiring clock sync (nor mal operation)
	Alternating red/green	Alternating red/green	Identity (blinking for 6 sec onds)
	Blinking red	Blinking red	Dante fail safe
	Blinking orange	Blinking orange	Dante is upgrading

Setting a Dynamic IP Address (DHCP)

1. Keep the Audio out button pressed for 5 seconds; all front panel LEDs start to blink.

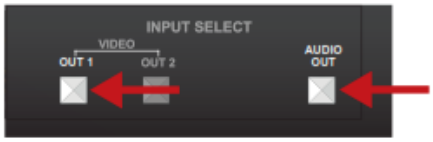


2. Release the button, then press it 3 times quickly. DHCP is now enabled.



Lock / Unlock Buttons

Press the VIDEO OUT1 (VIDEO IN1 in UCX-2×1-HC30 model) and AUDIO OUT buttons together (within 100 ms) to disable/enable front panel buttons; front panel LEDs blink 4 times when locking/ unlocking.



OCS (Occupancy) Sensor

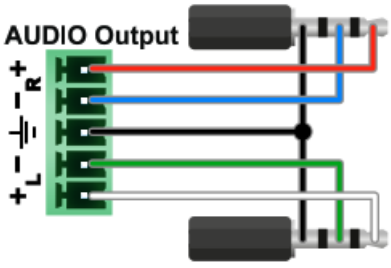
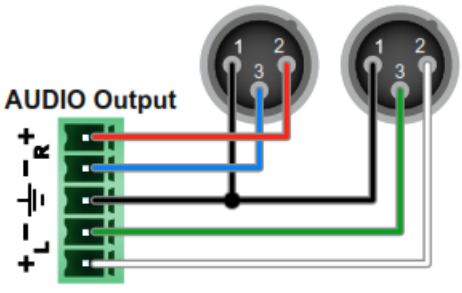
The switcher is supplied 3-pole Phoenix ® connector (male) which is for connecting an OCS sensor.
Plug pin assignment: 1: Configurable; 2: 24V (max. 50 mA); 3: Ground

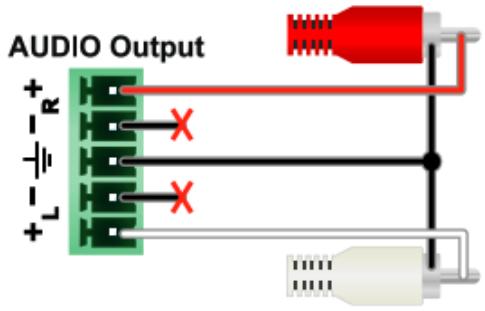
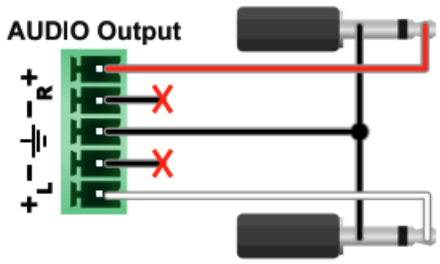
The signal levels for the Pin 1	Input voltage (V)	Max. current (mA)
Logic low level	0 – 0.8	30
Logic high level	2 -5	18

⚠ Occupancy sensor connector and GPIO port are not compatible with each other because of the voltage level difference, please do not connect them directly.

Audio Cable Wiring Guide

wood screws needed, M3 size is recommended. The Taurus UCX series is built with 5-pole Phoenix output connectors. See below a few examples of the most common assembling cases.

Balanced output to balanced input Phoenix – 2×6.3 (1/4”) TRS	Balanced output to balanced input Phoenix cable – 2x XLR plugs
	

Balanced output to an unbalanced input Phoenix – 2x RCA	Balanced output to an unbalanced input Phoenix – 2x 6.3 (1/4”) TS
	

GPIO (General Purpose Input/Output Ports)

The device has seven GPIO pins that operate at TTL digital signal levels and can be set to a high or low levels (Push-Pull). The direction of the pins can be input or output (adjustable). The signal levels are the following:

	Input voltage (V)	Output voltage (V)	Max. current (mA)
Logic low level	0 – 0.8	0 – 0.5	30
Logic high level	2 -5	4.5 – 5	18

Plug pin assignment 1-6: Configurable, 7: 5V (max. 500 mA); 8: Ground The recommended cable for the connectors is the AWG24 (0.2 mm 2 diameters) or the generally used ‘alarm cable’ with 4×0.22 mm 2 wires. The maximum total current for the six GPIO pins is 180 mm, the max. supported input/ output voltage is 5V.

RS-232

The switcher provides a 3-pole Phoenix connector for bi-directional serial communication. The signal levels are the followings:

	Output voltage (V)
Logic low level	**3 – 15**
Logic high level	**-15 – 3**

Plug pin assignment: 1: Ground, 2: TX data, 3: RX data

Further Information

The document is valid with the following firmware version: 1.2.0

The User’s manual of this appliance is available on [www.lightware.com.](http://www.lightware.com)

See the Downloads section on the dedicated product page.

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Doc. ver.: 1.3
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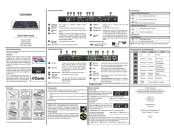
Documents / Resources

	LIGHTWARE UCX-2x1-HC30 Matrices and Switchers [pdf] User Guide UCX-2x1-HC30, UCX-2x2-H30, UCX-4x2-HC30, UCX-4x2-HC30D, Matrices and Switchers

References

- Lightware Visual Engineering