

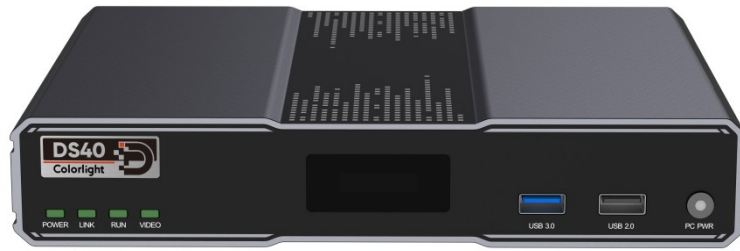
DS40

Distributed Controller

Specification v1.2



1 Overview



The DS40 is a powerful KVM over IP controller that unifies video wall processing, KVM workstation collaboration, and video matrix switching into one streamlined solution. With a decentralized, networked architecture, it handles 4K@60Hz video signals with ease, delivering seamless signal switching, windowing, scaling, and cross-screen display across LED or LCD walls.

Built-in control ports support infrared devices and relay systems, along with RS-232 and RS-485 protocols, making the DS40 ready for the connected world of IoT. It empowers command centers, data centers, and smart campuses with simplified cabling, intuitive visual management, effortless information sharing, and smooth, collaborative workflows — all in one comprehensive system.

2 Features

Input

- 1x HDMI 2.0
- 3x HDMI 3.0, 1x USB 2.0
- 1x 1G LAN (RJ45), 1x 1G FIBER
- 1x 3.5mm AUDIO IN
- Color depth: 8-/10-bit
- HDCP compliance: 2.3/1.4
- Frame rates: 24Hz to 60Hz
- Max. input/output resolution: 4096x2160@60Hz

Output

- 1x 1G LAN (RJ45), 1x 1G FIBER
- 1x 3.5mm AUDIO OUT, 1x 3.5mm AUDIO LOOP
- 1x HDMI 2.0 OUT, 1x HDMI 2.0 LOOP
- Frame rates: 24Hz to 60Hz

Video Processing

- 8-/10-bit video processing
- Video signal cropping, switching, and broadcast-grade scaling
- Latency from KVM workstation to host as low as 30ms

- Simultaneous decoding and display of multiple video streams
- Up to 16 windows per screen, with adjustable size and position for each window

Audio

- Audio input and output via HDMI ports
- 3.5mm audio input, output, loop-out
- Max. sampling rate/bit depth: 192kHz/24-bit
- 2-channel stereo

Working Modes

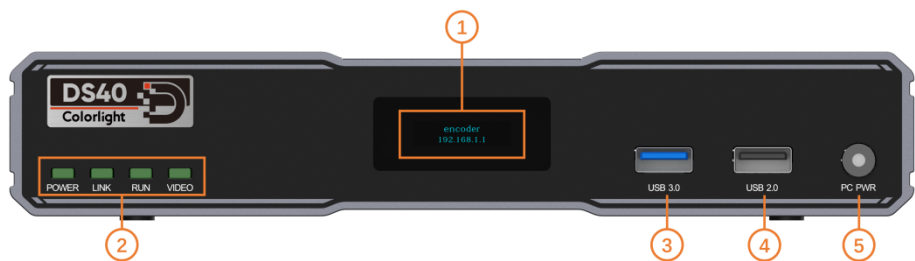
- Encoder: Encoding mode
- Decoder: KVM mode, video wall mode, video matrix mode

Device Control

- Serial control: RS-232/RS-485
- Remote control: IR/Relay
- Network control: TCP/IP via LAN port

3 Appearance

Front Panel



No.	Name	Description
1	LCD display	Shows the device name and IP address.
2	Indicators	• POWER (Power status) - ON: Power supply is normal. - OFF: Device is not powered. • RUN (Device running status) - ON: Device is operating normally. - OFF: Device is malfunctioning. • LINK (Network connection status) - ON: Network connection is normal. - OFF: Network connection is lost. • VIDEO (Video transmission status)

		- ON: Video stream is normal. - OFF: No video stream or stream error.
3	USB 3.0	• In Decoder-KVM mode: - Connects to a keyboard and mouse for control signal transmission - Connects to a USB drive for data transfer • Voltage/Current: 5V/0.9A • Transfer speed: 400 Mbps
4	USB 2.0	• In Decoder-KVM mode: - Connects to a keyboard and mouse for control signal transmission - Connects to a USB drive for data transfer • Voltage/Current: 5V/0.5A • Transfer speed: 160 Mbps
5	PC PWR	Power button: Powers on/off PC connected to PC CTRL port.

Rear Panel



No.	Name	Description
1	PC CTRL	4-pin phoenix connector: Connects to a PC for transmitting power on/off control signals.
2	RELAY/IR	• 4-pin phoenix connector: Connects to a control device. - RELAY: Connects to a relay for transmitting level control signals. - IR: Connects to an IR device for transmitting IR control signals.
3	RS485/RS232	5-pin phoenix connector: Serial port for connecting to a control device and transmitting control signals.

4	VIDEO	- HDMI 2.0 (19-pin female): - HDMI IN: Video signal input - HDMI LOOP: Loop output of the video input - HDMI OUT: Video stream output - Custom resolution: - Max. input/output: 4096x2160@60Hz - Max. width: 8192 pixels (8192x1024@60Hz) - Max. height: 8192 pixels (1024x8192@60Hz) - HDCP 2.3/1.4 compliant - Audio input supported
5	AUDIO	- Standard 3.5mm audio jacks: - IN: Audio signal input - LOOP: Loop output of the audio input - OUT: Audio stream output
6	USB	- Left USB 3.0 port: - In Encoder mode: Connects to host for control signal transmission - In Decoder-KVM mode: Connects to a keyboard and mouse for control signal transmission - Right USB 3.0 port: - In Decoder-KVM mode: Connects to a keyboard and mouse for control signal transmission or to a USB drive for data transfer - Voltage/Current: 5V/0.9A - Transfer speed: 400 Mbps
7	ETH	LAN(PoE): 1G LAN port (RJ45), 10/100/1000 Mbps auto-negotiation - PoE powered (12V/2A) FIBER: 1G FIBER port, compatible with 1G/2.5G/5G/10G optical modules - Fiber-LAN redundancy: When LAN and FIBER are both connected, FIBER serves as backup for LAN.
8	12V/2A	DC 12V 2A external power input

4 Signal Specifications

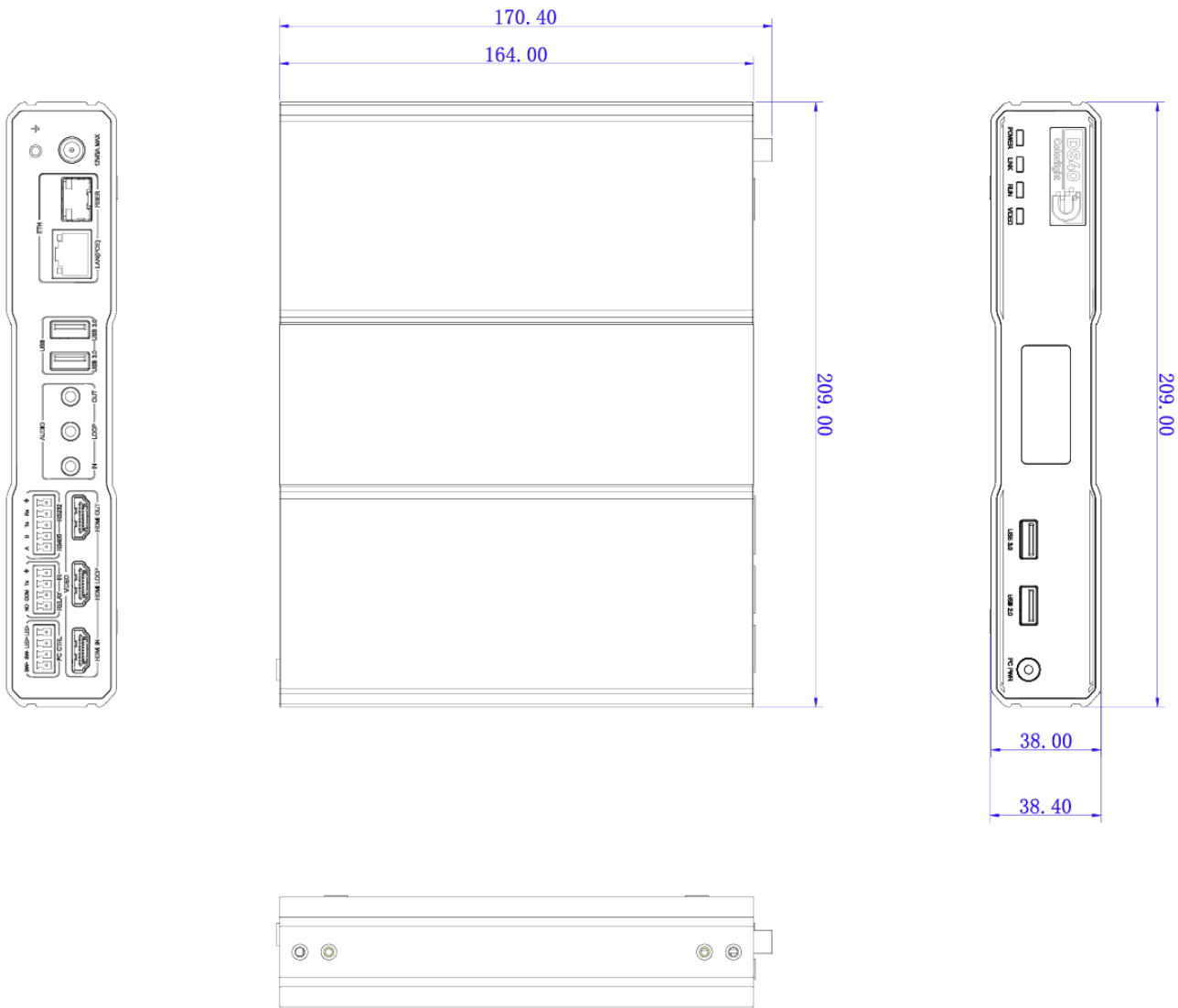
HDMI 2.0					
Input	Color Space	Sampling	Color Depth	Max. Resolution	Frame Rate
4K	YCbCr	4:2:0	8-/10-bit	4096x2160@60Hz	24, 25, 30, 50, 59.94, 60
	YCbCr	4:2:2	8-/10-bit	4096x2160@60Hz	
	YCbCr/RGB	4:4:4	8-bit	4096x2160@60Hz	
	YCbCr/RGB	4:4:4	10-bit	4096x2160@30Hz	
2k	YCbCr	4:2:0	8-/10-bit	1920x1200@60Hz	24, 25, 30, 50, 59.94, 60
	YCbCr	4:2:2	8-/10-bit	1920x1200@60Hz	
	YCbCr/RGB	4:4:4	8-/10-bit	1920x1200@60Hz	
Note: Only common resolutions are listed above.					
3.5mm Audio Jack					
I/O		Max. Sampling Rate/Bit Depth		Encoding/Decoding Protocol	Channel
Analog signal		192kHz, 24-bit		AAC, G.711A, G.711U, G.726	2-channel stereo

5 Specifications

Video Codec	Standard	H.264/H.265
	Bit rate	4Mbps~40Mbps
	Frame rate	24Hz~60Hz
Audio Codec	Standard	AAC/G.711A/G.711U/G.726
Protocol	Streaming	RTSP/SIP/RTMP/ONVIF
	Network	TCP/IP
	Transmission	TCP/UDP
Electrical Specifications	Power supply	12V/2A DC
	Power consumption	≤ 10W
Operating Environment	Temperature	-20°C~70°C (-4°F~158°F)
	Humidity	0%~90%, non-condensing
Storage Environment	Temperature	-20°C~70°C (-4°F~158°F)
	Humidity	0%~90%, non-condensing
Physical Specifications	Dimensions	209mm (8.23") x 164mm (6.46") x 38mm (1.50")
	Net weight	0.9kg (1.98lb)
Packaging	Box dimensions	295mm (11.61") x 240mm (9.45") x 114mm (4.49")

6 Reference Dimensions

Unit: mm



7 Statement

7.1 Certifications

CQC, CE, FCC, IC, UKCA



Note: If the product does not have the relevant certifications required by the countries or regions where it is to be sold, please contact Colorlight to confirm or address the problem as soon as possible. Otherwise, the customer shall be responsible for the legal risks or Colorlight has the right to claim compensation.

7.2 Legal Statement

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