

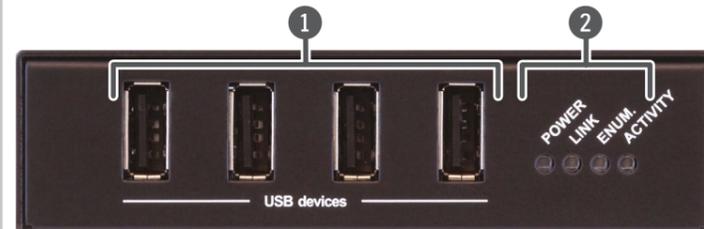


Quick Start Guide

USB20-1GBE-DS4
USB20-1GBE-HS10
USB20-1GBE-DS4P
USB20-1GBE-HS13P

Front view

USB20-1GBE-DS4



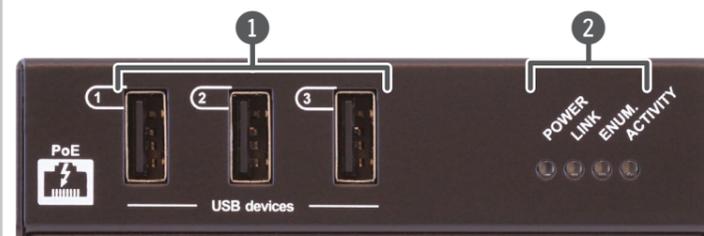
USB20-1GBE-HS10



USB20-1GBE-DS4P



USB20-1GBE-HS13P

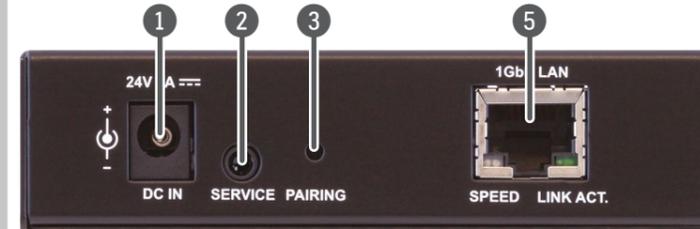


- 1 **USB A-Type connectors** USB A-Type connectors for USB devices.
- 2 **Status LEDs** For the details, see the table on the right.

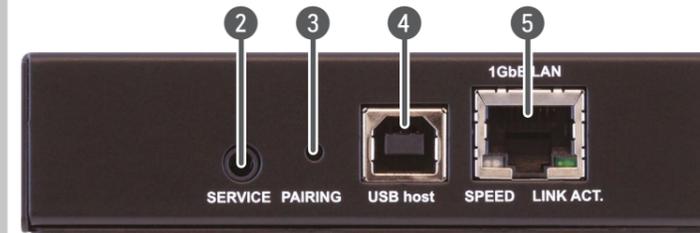
i The USB-A ports are capable of supplying 1A to the connected USB devices, up to a maximum of 3A at the same time across all four ports (three ports in case of USB20-1GBE-HS13P).

Rear view

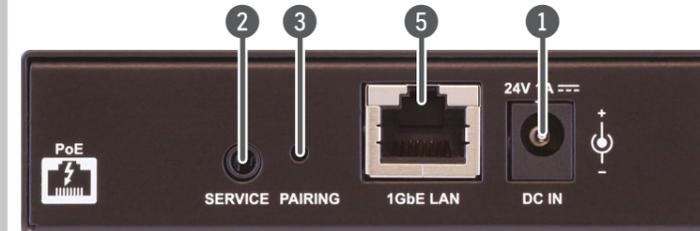
USB20-1GBE-DS4



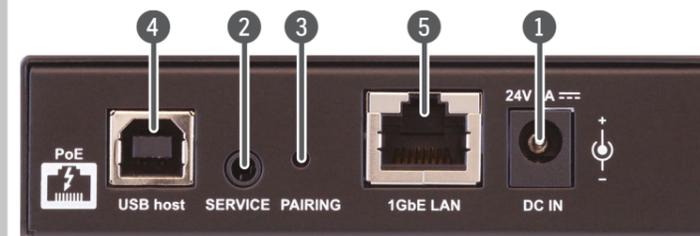
USB20-1GBE-HS10



USB20-1GBE-DS4P



USB20-1GBE-HS13P



- 1 **DC power connector** 24V DC connector for powering the device.
- 2 **Service port** Port for service purposes.
- 3 **Pairing button** For the details, see below.
- 4 **USB B-Type port** USB B-Type port for connection to the host device.
- 5 **RJ45 connector** RJ45 connector for Ethernet connection.

LED functions

Power LED		
	off	The device is not powered.
	on (blue)	The device is powered on.
	on (red)	The device is powered by PoE, but power is insufficient. (In case of models USB20-1GBE-DS4P and USB20-1GBE-HS13P).
Link LED		
	off	The device is not paired yet.
	blinking slow (green)	The linking process has started.
	blinking fast (green)	The pairing process has started.
	on (green)	The pairing process has finished, link is created.
Enumeration LED		
	off	Extender is not enumerated by the host.
	blinking (green)	Extender enumeration is suspended.
	on (green)	Extender enumeration is completed.
Activity LED		
	off	There is no transmission.
	blinking (yellow)	The extender is ready for transmission.

RJ45 LEDs

Speed LED		
	off	There is no Ethernet connection.
	on (green)	The connection bandwidth is 1000 Mbps.
	on (orange)	The connection bandwidth is 10/100 Mbps.
Link Activity LED		
	off	There is no Ethernet connection.
	blinking occasionally	Extender is not paired.
	blinking repeatedly	Host side extender is attempting to pair.
	blinking quickly	Extender is paired.

Important Safety Instructions

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

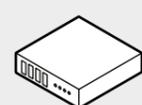
Introduction

The USB20 Extender series can be used to build a system to transmit USB signals across greater distances than what is generally allowed by a USB cable, taking advantage of the data transmission capabilities of CATx cables and network switches. By using switches, transmission distances of up to 100 meters can be reached. This makes it possible to place USB devices (such as microphone, web camera, keyboard and mouse, mass storage etc.) far away from the Host device while still having full usage of them.

Highlighted features

- USB 2.0 extension using CAT5e/6/7 cables up to 100 meters
- LAN and direct cable connectivity supported
- Dynamic pairing between compatible extenders
- Transparent USB extension
- Throughput up to 480 Mbps
- Charging with PoE+ via PoE+ capable switch or PoE+ power injector
- Software control - see the User's Manual for more information

Box Contents



Extender device



Safety & Warranty Info;
Quick Start Guide



24V DC adaptor with interchangeable plugs¹

¹ The adaptor is only supplied with the USB20-1GBE-DS4 device.

Cable Extension Information

The maximum cable length between the extenders or a switch and an extender is 100m. This means that by equipping a switch between the extenders, a maximum of 200m distance can be reached. If more switches are added between the extenders, each can lengthen the distance by 100m.

Either CAT5, CAT6 or CAT7 cables can be used.

If the extenders are placed in an environment where the ESD level can be higher than average, it is recommended using shielded CAT cables for undisturbed signal transmission.

Powering Options

Only the USB20-1GBE-DS4 device is supplied with a power adaptor. USB-1GBE-HS10 is powered over the USB connection to the Host device.

The USB20-1GBE-DS4P and USB20-1GBE-HS13P models are PoE+ devices, and can be powered by a PoE+ capable switch or PoE+ power injector. Please note that a non-PoE+ switch or power injector does not supply enough power for these extenders. In such cases they need to be powered locally.

i The power adaptor is not supplied for USB20-1GBE-DS4P and USB20-1GBE-HS13P. It may be purchased as an optional accessory. Please contact sales@lightware.com.

Pairing the Devices

Pairing happens using the MAC address of the devices. It does not happen automatically, it must be done manually. The process is the following:

1. Use a long, thin object (e.g. a paper clip) to press the **Pairing** button of one of the devices once shortly. This will cause the **Link** LED to flash quickly.
2. Press the **Pairing** button on the other device in the same way. The **Link** LED of both devices will light continuously, and the MAC address of the device-side extender is added to the list of paired devices in the host-side extender and vice versa.
3. Repeat the procedure for each device-side extender in the system. Up to seven device-side extenders can be paired with a single host-side extender at once.

The pairing procedure has a time limit of 10 minutes. If the pairing does not occur in this timeframe, the procedure must be restarted.

i If the devices are paired, but there is no network connection, the **Link** LED will blink slowly.

Deleting a paired device

You can delete paired devices from the memory by pressing the **Pairing** button for more than 10 seconds. Please keep in mind that this will only delete the pairing list in the current device. To completely remove the pairing on both devices, this procedure must be done on both of them.

Setting a Dynamic IP address (DHCP)

You can set DHCP by pressing the **Pairing** button for the first 5 seconds of the device turning on. DHCP gets enabled and the device restarts.

The User's Manual is also available via the QR code below:



Lightware Visual Engineering PLC.
Budapest, Hungary

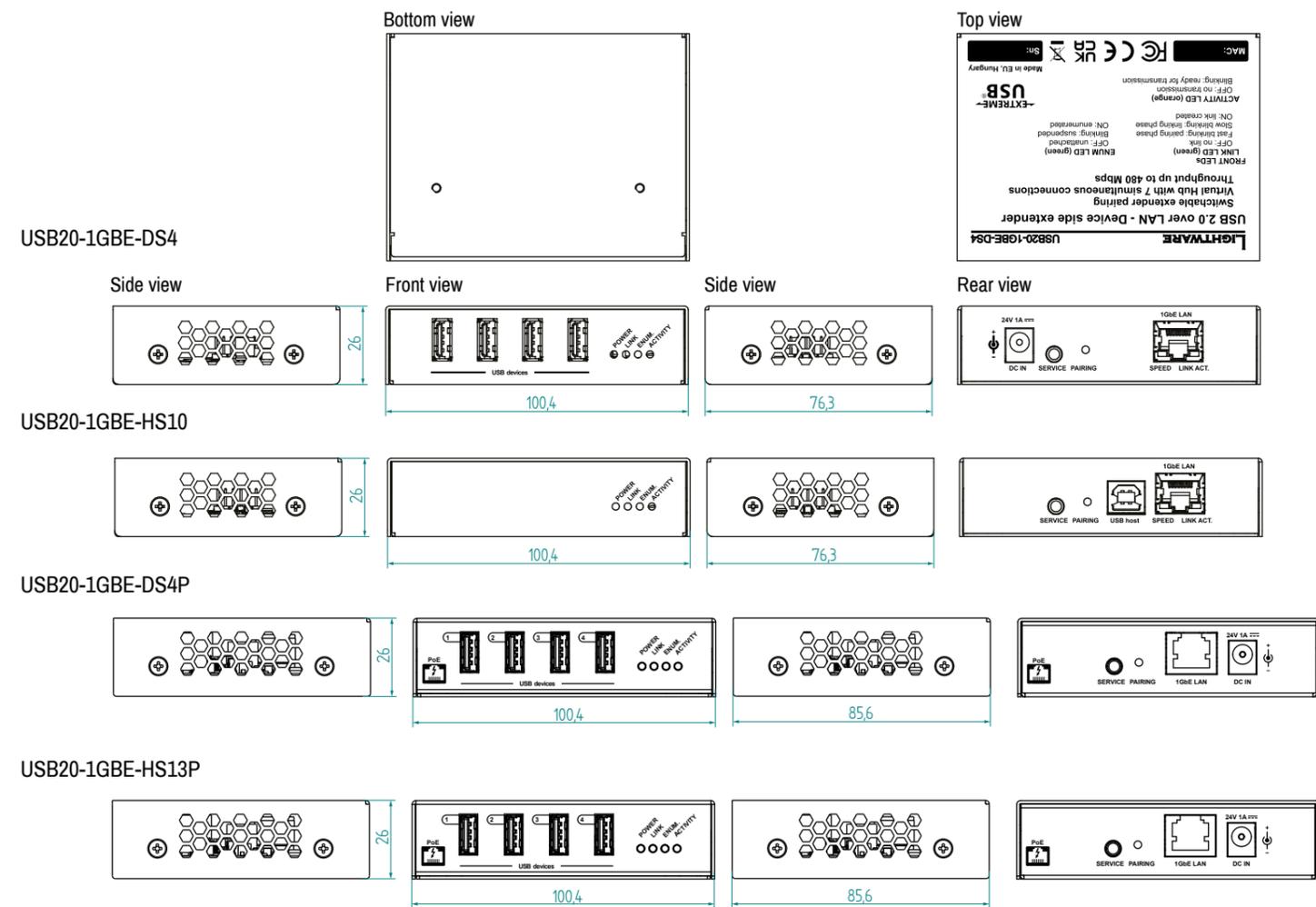
✉ sales@lightware.com ☎ +36 1 255 3800

✉ support@lightware.com ☎ +36 1 255 3810

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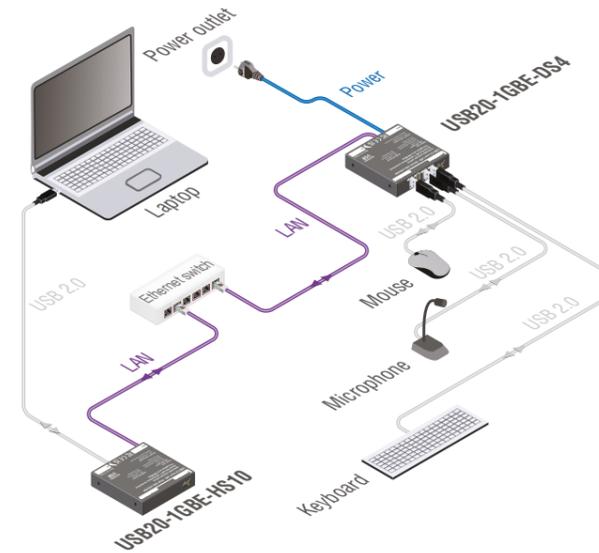
Further information on the device is available at www.lightware.com.

Mechanical drawings

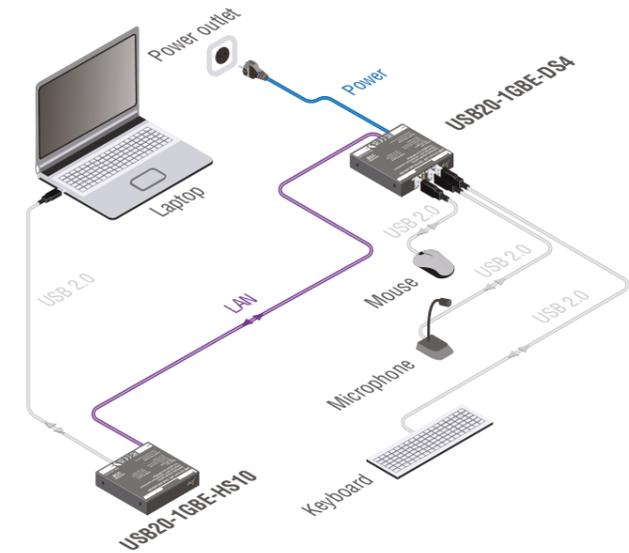


Application diagram

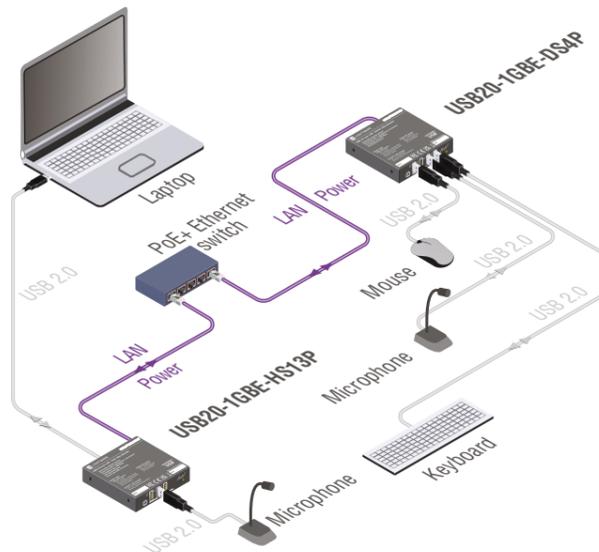
Creating a system using an Ethernet switch



Creating a system by connecting the extenders directly



Creating a system using a PoE+ capable Ethernet switch



Mounting options

The device can be mounted to a rack shelf, UD kits and UD mounting plates.

Rack Shelf

The 1U high rack shelf provides mounting holes for fastening up to four extenders.



Mounting Steps:

⚠ Always use the fixing screws that are supplied with the mounting accessory. Longer screws may damage the device.

1. Unplug all the cables connected to the device(s).
2. Turn the device(s) upside down.
3. Put the shelf upside down on the device(s). Position it to get the mounting holes aligned.
4. Fasten the device to the shelf with the provided screws.
5. Fix the shelf to the desired place (screws are not supplied).

Under Desk Mounting Kit (UD-kit)

The UD-kit makes it easy to mount one extender under any flat surface (e.g. furniture).

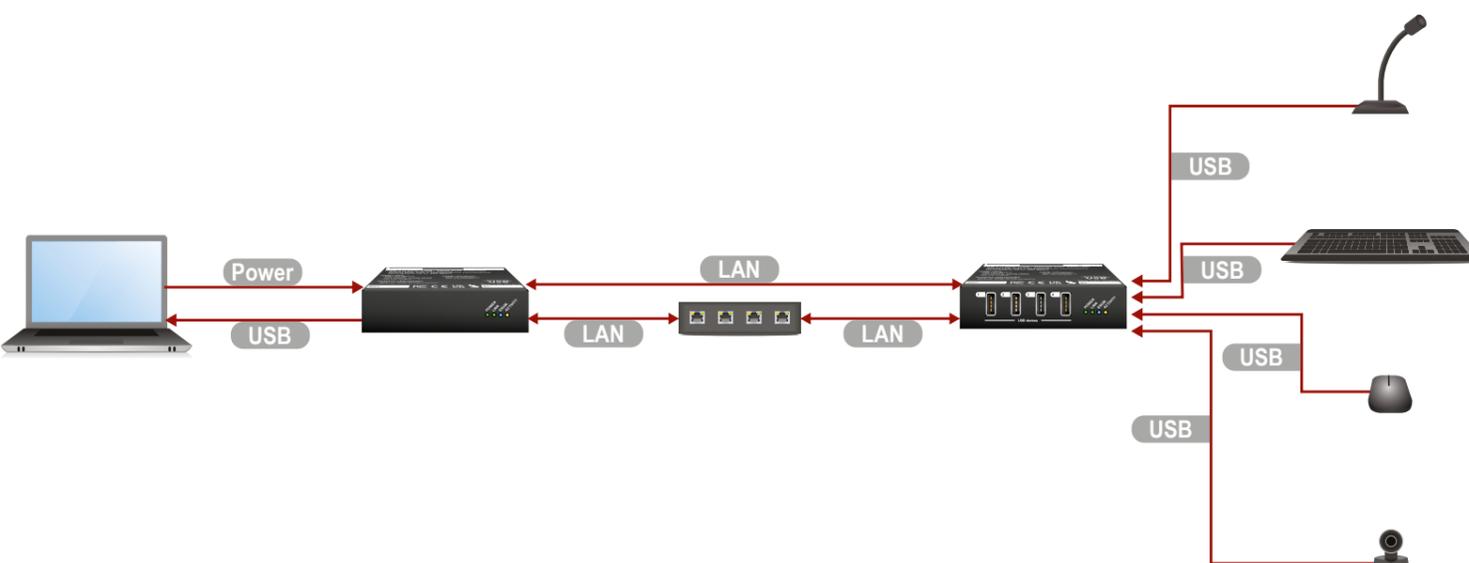


UD Mounting Kit Double (UD-kit double)

The UD-kit double makes it easy to mount two extenders under any flat surface (e.g. furniture).



Connecting steps



- USB** Connect the host device to the USB20-1GBE-HS10 device with a USB cable through the USB B-type connector.
- Power** The host provides power to the USB20-1GBE-HS10 device via the USB cable.
- LAN** Connect the USB20-1GBE-HS10 and USB20-1GBE-DS4 devices with CATx cables. Optionally you can insert an Ethernet switch between the extenders for additional extension distances.
- USB** Connect the USB devices to the USB20-1GBE-DS4 device with USB cables through the USB A-type connectors.