

Hardware

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I Introduction

USB-DMX interfaces 512 channels

The USB standard defines a new type of serial-communication as well as a new type of connector. This standard was introduced in 1997 and has been spreading ever since 1999.

It offers many advantages in comparison with former standards. For instance, it allows devices to be directly powered via the USB port as well the simultaneous use of several devices at once. Plug and play is also made possible.

The USB-DMX interface is a world's first innovation. It thoroughly respects the USB protocol specification and DMX512 for output. It is directly powered via the USB port and controls all 512 potential channels of a DMX line. If the 512 channels are not sufficient, some software can run up to 10 USB interfaces simultaneously, i.e. 5,120 channels altogether.



II Installing the USB drivers

Although Microsoft does not numerically register this driver, there is no risk of incompatibility. Click "Next" and carry on the driver installation.

That's it, you are away ! Your USB-DMX is now operational !



The USB interface is set and ready to use. When using one for the first time, it is necessary that the USB drivers should be installed. Actually, when first installing them, the files required to use the interface will be installed inside your PC, whether using a laptop or a desktop computer.

In order to install USB interface, just connect it to your PC even if it is switched on. Your computer will automatically detect any new device and you will be prompted to load a driver for it (via a Window wizard).



Then insert the CDrom into your PC and click on Next. Windows will find the appropriate driver.



III Role played by the Leds

Role played by the 3 Leds on the interface

- The yellow Led (in the middle) indicate that the interface is properly-powered.
- The red Led situated by the "DMX" connector blinks to indicate that the DMX signal is being sent. No blinking corresponds to interface-failure.
- The green Led by the "USB" connector should blink rapidly when the interface is controlled by a software. In stand alone mode, this green led blinks several times to indicate active scene number.

IV Memory capacity in stand alone mode

The stand alone memory capacity depends on the number of channels. More channels you use, less steps are available.

See the following table to know the number of steps available.

USB version

20 channels	2386	5629
100 channels	549	1297
248 channels	225	534
512 channels	X	259

V External power

Here are the characteristics of the external power supply for the "stand alone" interfaces:

Voltage:

between 9V and 12V DC

Intensity:

300mA or more

Polarity:

+ in the centre

We advise a power supply respecting the CE and UL norms.



VI HE10 connector

It enables to connect 8 ports. No power is needed, you only have to make a temporary contact between the ground (pin 2) and one of the 8 ports (pins 1,3,4,5,6,7,8,9). If 8 contacts are not enough, you can use several ports simultaneously to get up to 255 possibilities by using binary combination.

External Connector Pin Assignment:

Pin 1: Port 8
Pin 2: Ground
Pin 3: Port 7
Pin 4: Port 6
Pin 5: Port 5
Pin 6: Port 4
Pin 7: Port 3
Pin 8: Port 2
Pin 9: Port 1
Pin 10: + 3,3V

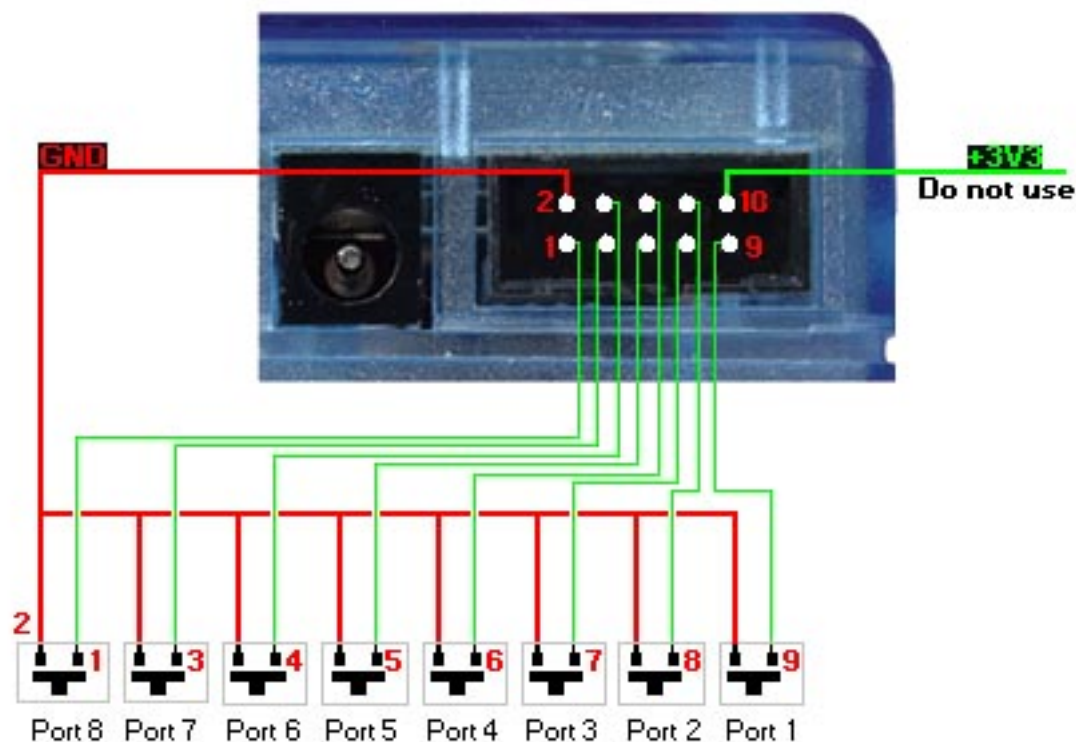
The internal "expansion" connector

Internal Connector Pin Assignment:

Pin 1: Ground
Pin 2: Ground
Pin 3: DMX +
Pin 4: Button -
Pin 5: DMX -
Pin 6: Button +
Pin 7: +3V3
Pin 8: 'DMX' Led
Pin 9: V. EXT
Pin 10: '#' Led

The "stand alone" interfaces have 2 HE10 connectors.

The external "I/O ports" connector.



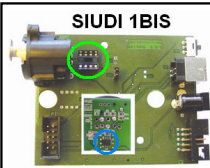
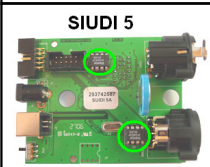
	Port 1	Port 2	Port 3	Port 4	Port 5	Port 6	Port 7	Port 8
	1	2	4	8	16	32	64	128
Address 1	ON							
Address 2		ON						
Address 3	ON	ON						
Address 4			ON					
.....
Address 254		ON	ON	ON	ON	ON	ON	ON
Address 255	ON	ON	ON	ON	ON	ON	ON	ON

VII Changing the DMX chipset

If your interface is recognized by the software but you have no DMX signal on the output, may be the DMX chip need to be replaced and you can do this easily by yourself.

We

advise you to have an available spare DMX chip (RS485 driver). This is an 8 pin electronic IC component that has been set inside the interface box for the purpose of "driving" the DMX512 line. It is available under several references, see below:

 <p>SIUDI 1BIS</p>	(3,3V DIP)SP3483EP-L SP3483CP-L MAX3483CPA+	(3,3V CMS) SP3483EN-L SP3483CN-L MAX3483CSA+ ISL83483IBZ	
 <p>SIUDI 5</p>	(5V DIP)SP485ECP-L MAX485CPA+ADM485J NZISL8485ECPZISL8485EIPZ		

SP = made by Sipex www.sipex.com

MAX = made by Maxim www.maxim-ic.com

AD = made by Analog Device www.analog.com

LTC = made by Linear www.linear.com

ISL = made by Intersil www.intersil.com

You can purchase those components on several websites like www.farnell.com or www.radiospares.com.

Notes:

- For the SIUDI 1bis, don't forget to remove the CMS chip if you want to plug a DIP chip
- The

SIUDI 5 has DMX IN and DMX OUT, so the card uses 2 identical DIP chips. If you need urgently to repair the DMX OUT, a quick solution is to use the DMX IN chip (exchange the 2 chips) and after you have all the time to buy a new chip.

Test of electronic signals (for electronic technicians only)

The DMX DRIVER chip component has 8 pins. Here are the main pins :

Pin 4 DATA INPUT

Pin 5 GROUND

Pin 6 DMX + OUTPUT

Pin 7 DMX – OUTPUT

Pin 8 3,3V or 5V

If

there is a correct signal on pins 7 and 8 but nothing on the XLR connector, please check the 4 resistors (see the XLR chapter).

if there is not signal on pin 4, the interface has another problem.

VIII XLR choice : 3 or 5 pins

The "DMX" norm imposes 5-pin XLR but the use of 3-pin XLR is very widespread because of their cost. Our interfaces are available either in 3-pin or 5-pin. You can change the XLR connector if you want. To do so, there are 4 resistors that must be removed or not. See the table below:

	RSC (R5) 0 ohms	RSD (R8) 0 ohms	RSB (R30) 0 ohms	RSA (R31) 0 ohms
XLR Female 3 pins				
XLR Female 5 pins	YES		YES	
XLR Male 3 pins		YES		YES
XLR Male 5 pins		YES		

Caution:

You can not transform a "DMX OUT" interface in a "DMX IN" interface (or vice-versa) just by replacing the XLR connector.

XLR Connector Pin Assignment :

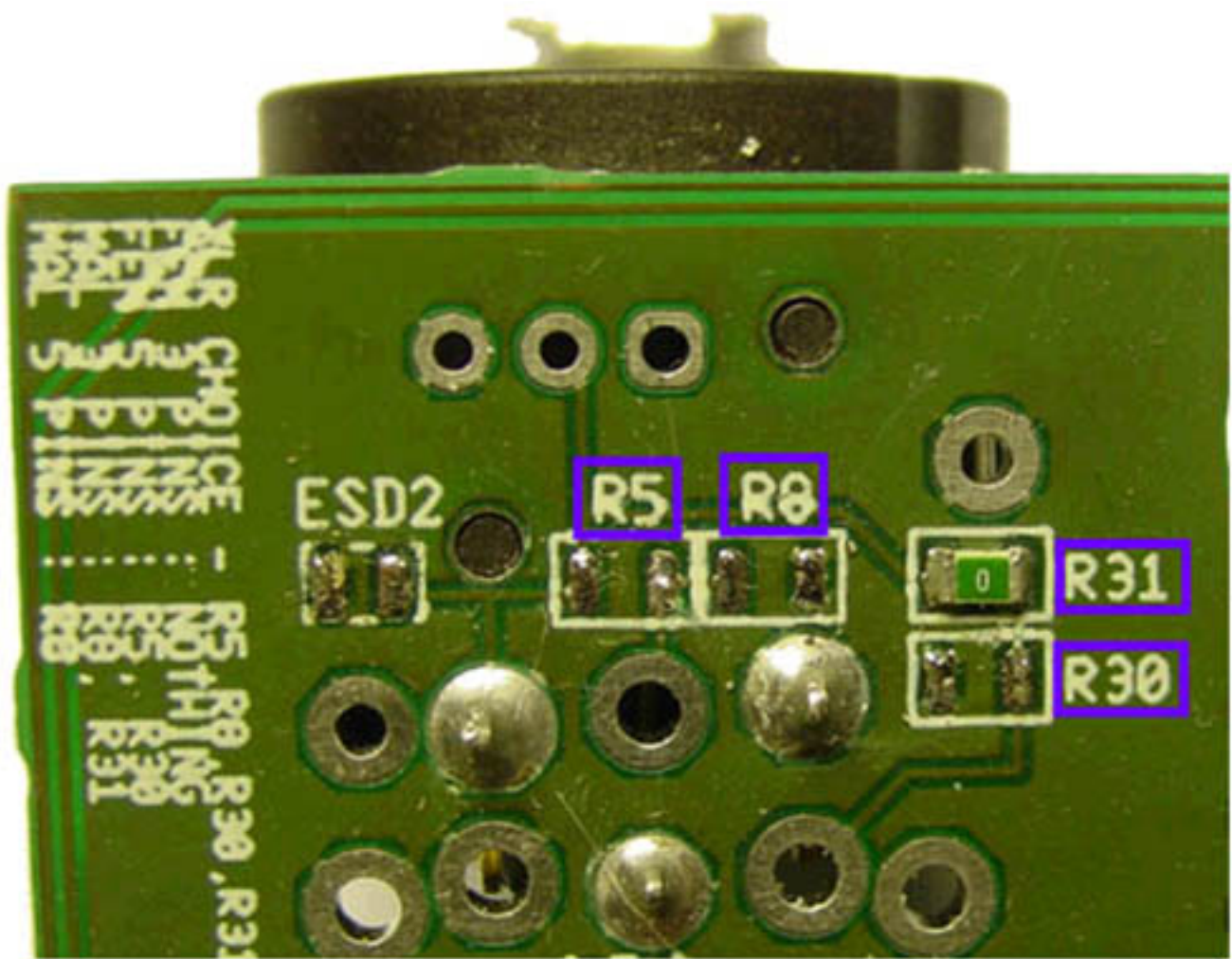
Pin1 : DMX OUT GROUND

Pin2 : DMX OUT DATA -

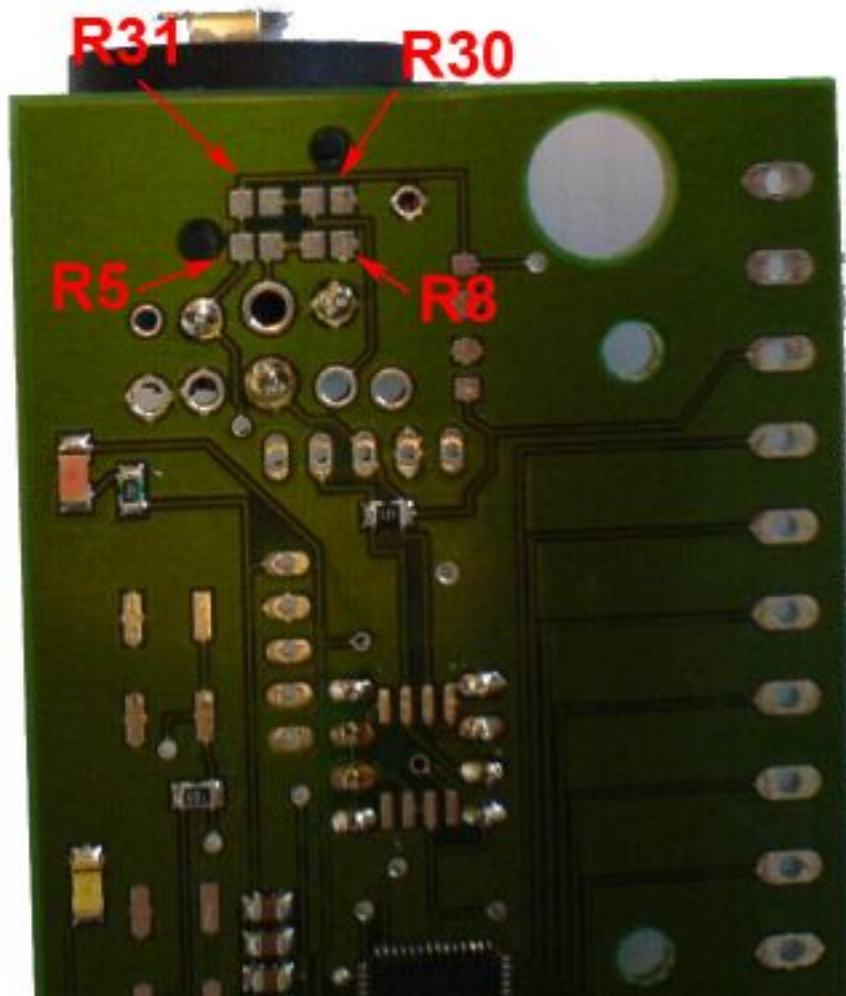
Pin3 : DMX OUT DATA +

SIUDI5 interfaces

The references are RSC1, RSD1, RSB1, RSA1 (DMX output) and RSC2, RSD2, RSB2, RSA2 (DMX input).



SIUDI6



IX Hints

Please read carefully the following preventive measures:

1. Place a DMX insulator between interface and DMX fixtures (e.g. Botex DD2, Elation DMX Branch/4) in order to protect them both from any interference and from overvoltage.
2. We advise you to have an available spare DMX chip (RS485 driver). This is an 8 pin electronic IC component that has been set inside the interface box for the purpose of "driving" the DMX512 line. It is available under several references ...
3. Create stand alone scenes in your interface in order to lessen the impact of any potential computer breakdown. In this case connect interface via an external power supply.
4. As with any other DMX controller, keep aside an independent backup system, as this is the only way to be on the safe side when faced with any type of problem.
5. Save all scene programs and keep aside a CDrom software version: restoring the whole show only takes a few minutes !!

Using several USB interfaces simultaneously:

Connect all interfaces before starting on your computer in order to proceed to programming. If not so, the cards order could be inverted next time your computer get started. Your programming would consequently lose coherence.

X Troubleshooting

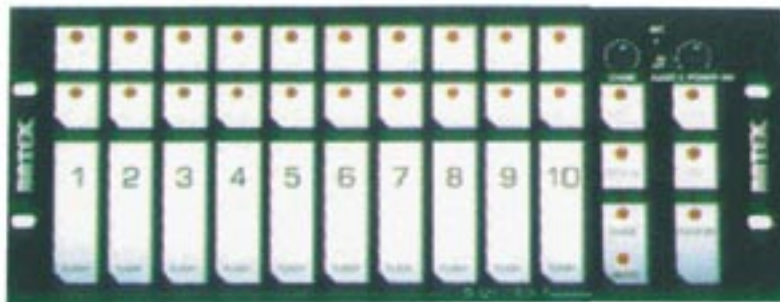
SYMPTOMS	CAUSES	REMEDIES
Software cannot found USB interface	USB cable is not connected properly or USB port is faulty "Intelligent USB DMX Interface" is not mentioned in list of devices : driver is not installed Interface is off Yellow leds are switched on but red led does not flash	Check cable connection or use another USB port See section "How to install USB-DMX 512 interface" Select "USB" position on power supply or connect via an external power supply Switch box breakdown : contact your retailer
DMX fixture does not respond	Receivers do not detect DMX, yet DMX signal output is operational DMX red led flashes, but DMX signal output is not operational	Check DMX wire and if possible test another DMX receiver Replace the 8 pin-chip set in the interface box.

XI Other connections

In this manual, you will find informations and hints about the several possible connections. However, some features may not be available with the product you have purchased.

1. DMX controllers

DMX controllers for "Club" or "DJ" applications:



For "Live" applications, the use of DMX console can be very useful. The faders and buttons of DMX controllers can give direct access to some features of your software.

Remarks:

- requires a "DMX IN" interface and associated functions in the software
- the DMX controller may be very useful in case of a computer crash



2. Contacts (input)

Most of our electronic interfaces have an HE10 connector to connect up to 8 contacts. The standard application is the connection of a panel with 8 (or less) buttons to trigger the different "lighting shows". It is very useful for architectural installations. You can connect any devices that can generate a contact: relays, IR detector, HF receptor, switches...

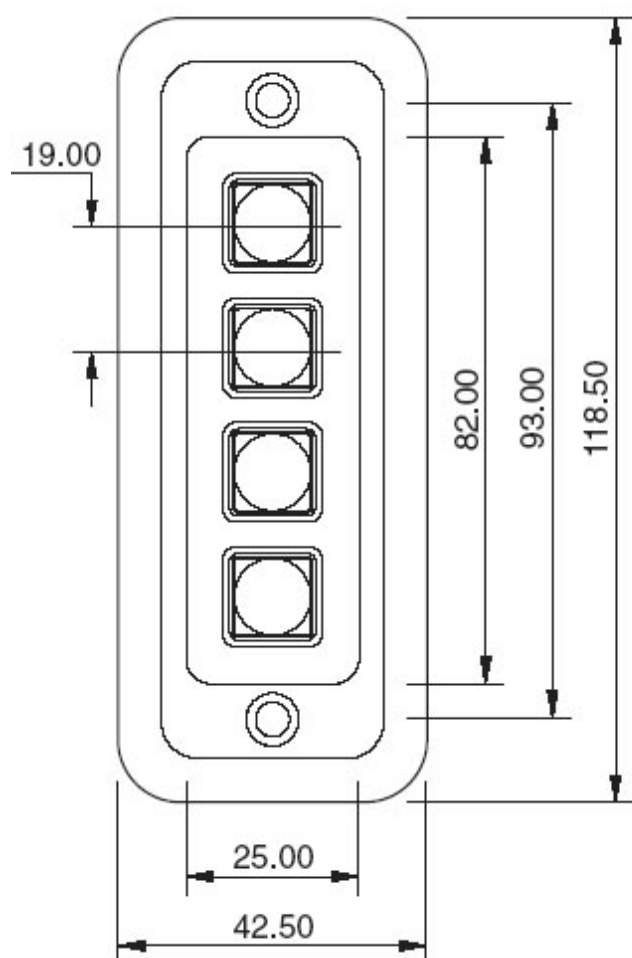


Sample of Keypads - Storm 4 buttons

(details and connections)

See below a complete description to order this keypad from Storm company and the components for the cable. We explain also how to make the connections. For more information visit www.storm-keypads.com

Serie	Picture	Ref. Storm	Ref. Farnell	Ref. Radiospares
Touch keypads for exposed public applications (Storm 1000 PLX series)		PLX0422 01	102957	301-3835
Robust keypads for harsh industrial use (Storm 2000 series)		2K0421 01	546392	
Touch keypads with snap-on keytops for custom legends (Storm Graphic Series)		GS0402 01	102799	301-3885



Connection Details for 4 Key Keypad

CONTACT CONNECTIONS



5 4 3 2 1

(As viewed from rear of keypad)



F1
F2
F3
F4

KEY LOCATION

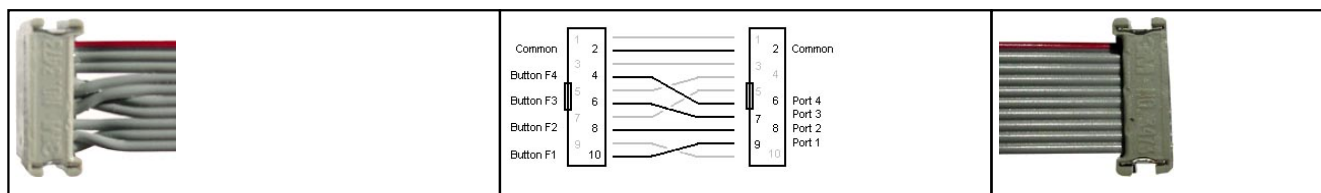
(As viewed from front of keypad)

CONTACT MATRIX

CONNEX. PIN	ROW/ COLUMN
1	common
2	F4
3	F3
4	F2
5	F1

Components to buy to make the cable	Pictures	Ref. Farnell	Ref. Radiospares
HE10 Connector female 10 pins (quantity 2)		249040	454-2362
Ribbon cable (Quantity 1m or +)		148011	246-8133

Connection to keypad 4 buttons	Here is the description of the connection. Only 5 wires are usefull to use the 4 buttons of the keypad, but we advise to connect the 10 wires of the ribbon cable.	Connection to DMX interface
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Storm Interface - Keymat

14 Bentinck Court, Bentinck Road, West Drayton,

UB7 7RQ, England

Tel: +44 (0)1895 431421 Fax: +44 (0)1895 431132

Email: sales@keymat.com

Storm Interface USA

364 Pennsylvania Avenue, Suite 202,

Glen Ellyn, Illinois, 60137, USA

Tel: 630 469 2981 Fax: 630 469 2975

Email: sales.usa@storm-keypads.com

www.storm-keypads.com

3. 0-10V relay (output)

If you need to control external devices which do not accept the DMX signal, the best solution is to convert the DMX signal with DMX -> 0-10V or DMX -> RELAY interfaces. You can also use dimmer packs which are generally used to connect traditional lighting.

0-10V or DMX -> RELAY interfaces. You can also use dimmer packs which are generally used to connect traditional lighting.

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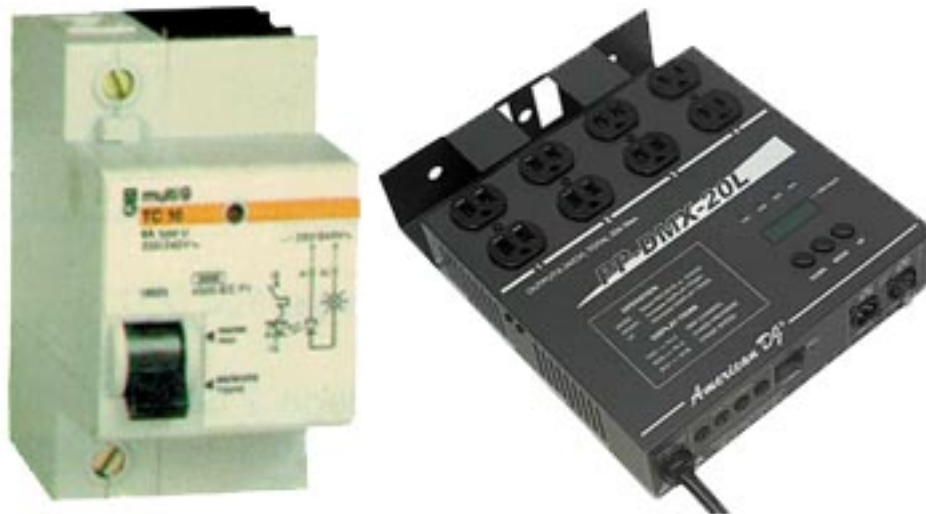
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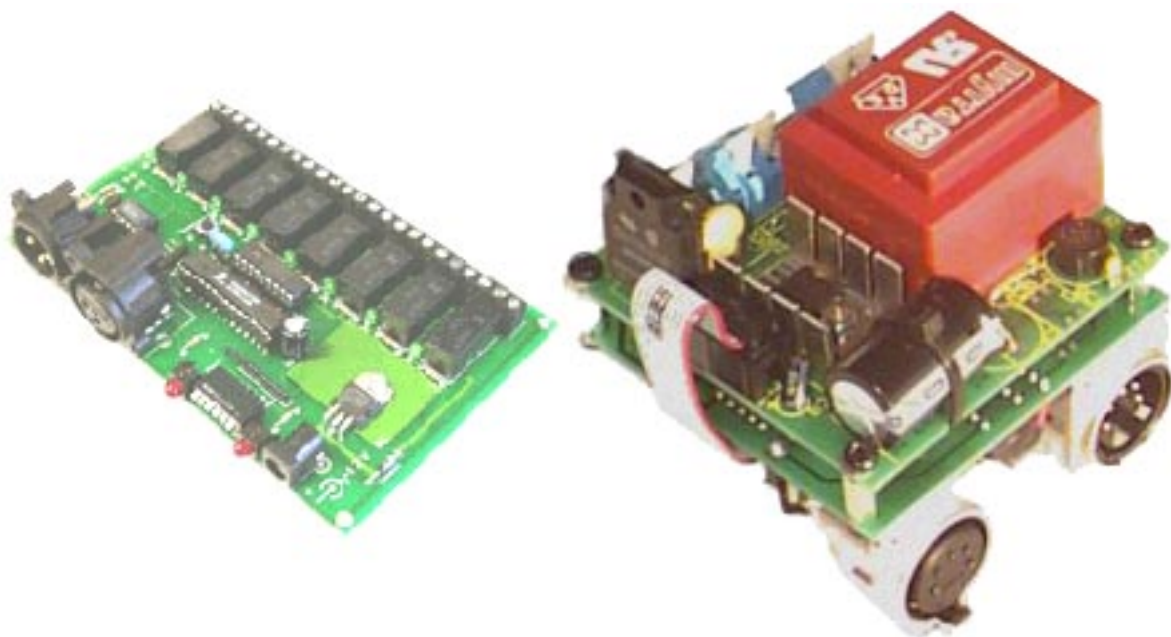
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lighting.



DMX - Relays - 0-10V interfaces:



4. MIDI controllers

For "Live" applications, the use of MIDI controller can be very useful. The faders and buttons of MIDI controllers can give direct access to some features of your software.

Remarks:

- requires MIDI functions in your software
- MIDI controllers are cheaper than DMX controllers



MIDI controller for "Club" or "DJ" applications. Traditionnal MIDI keyboards need a MIDI interface to be connected to a computer:



5. Audio Input/Output

All computers now have high quality AUDIO input and output. You can play an audio signal (music, voice message...) by starting WAV or MP3 files.

The audio input enables to connect a microphone or a mixer in order to trigger your lights with an audio signal.



Connection of the audio input and output:



6. Special keyboards

The computer keyboard is very important to use your software. Read the software manual to know how to use your keyboard to trigger your software.



You can also purchase customized keyboards. The manufacturer VKS SYSTEM www.vks.fr, knows our products and has already made keyboards adapted to our software. You can find other manufacturers all over the world.



7. HF commands (wireless)

This technique consists in using a remote control (High Frequency (HF), Infra Red (IF) technologies...) to send informations to the software.

There are several methods to interface the receptor with our product:

- through the computer, using a software to affect a shortcut key or any other action to a button of your transmitter (only in "computer mode")
- through the I/O connector of your interface, in this case the receptor close a relay to trigger a port of your interface (can work in "stand alone" mode)

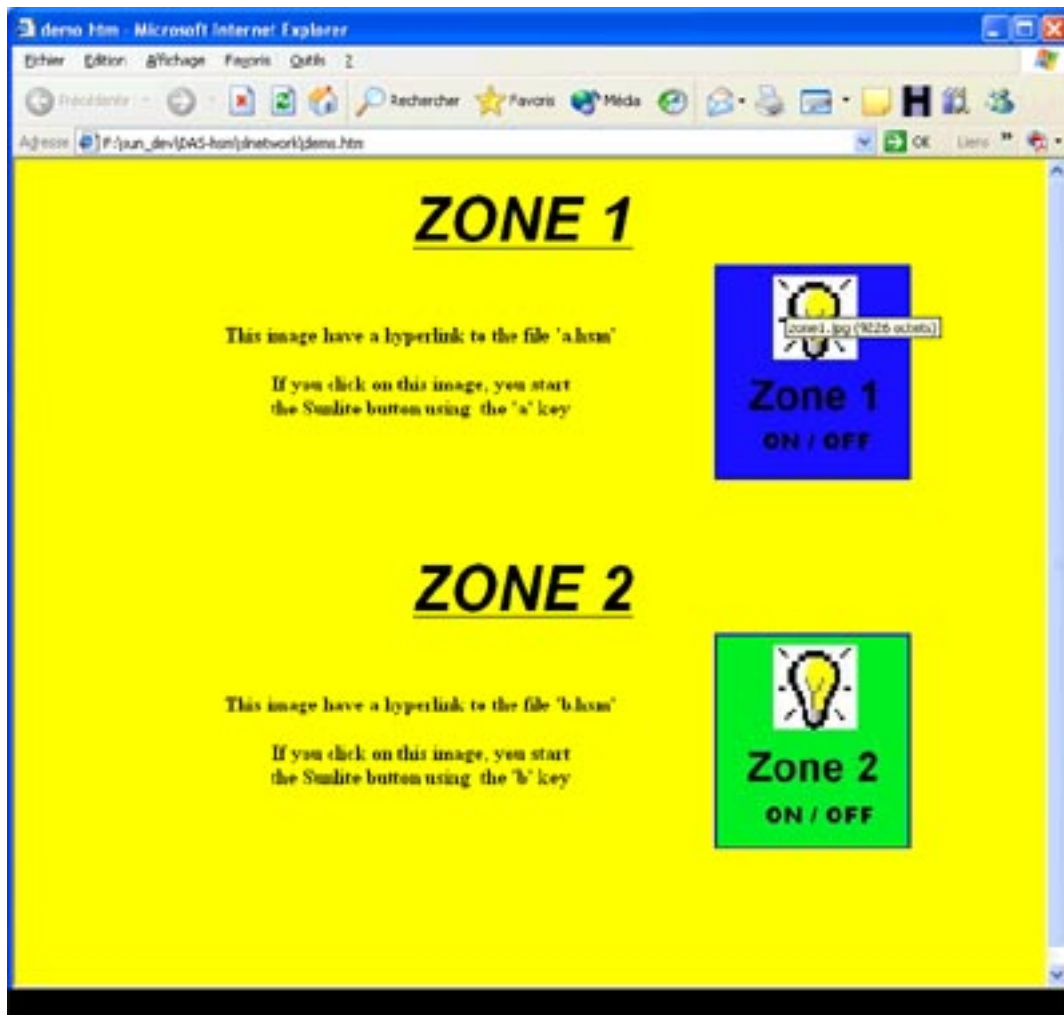


8. Touch screen

Touch screens enable not to use your mouse and keyboard anymore. You only have to touch the screen with your fingers what simulates a mouse click. These screens are compatible with all our softwares.



However, it is better to have big buttons on the user-screen in order to push the right button. This is why, we advise you to create your own screen using a web page. To do so, we have made a "kit" that you can download from our website and which enables to "interface" your web page to the software by simulating the shortcut keys.



What is the minimum configuration required for your computer

Minimum requirements

- Windows 98, ME, 2000 or XP, with DirectX 9.0
- 500 MHz CPU (1,5 GHz)
- 256 Mb of RAM memory RAM (512 Mb)
- 64 Mb of video memory (128 Mb)
- 100 Mb of free disk space
- CD-ROM drive

- 1 or 2 USB2.0 Ports