

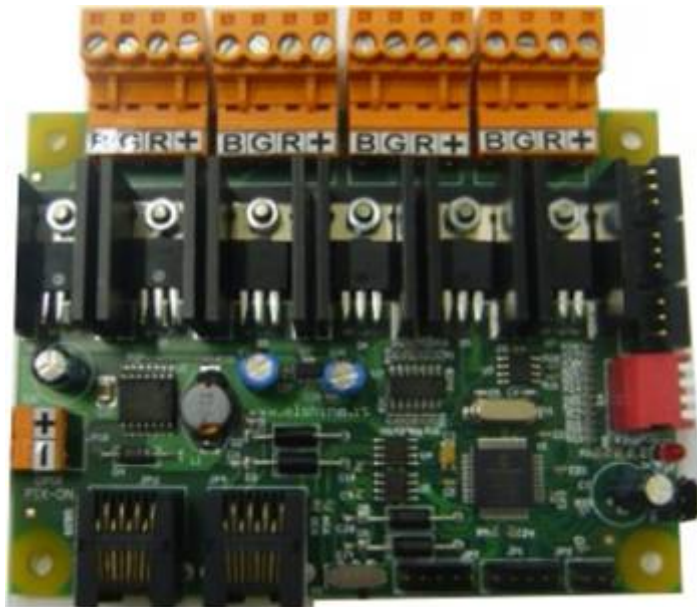
# DMX PIX ON BOARD

## DESCRIPTION

DMX PIX ON board produced by Elshine is an innovative All in One card , able to managing a huge products variety, functions and effects that until now was managed independently with different special boards.

## ELECTRICAL DETAILS

Input voltage	9V - 48 V DC
Output voltage	9V - 48 V DC
Output current	5A each channel compatible with the input current (max 10 Amperè)
Control signal	DMX 512
Dimmer system	PWM
Control channels	9 DMX channels with start address selected by rotary DIP switch
Managing system	DMX console, Stand Alone, Remote control with IR receiver



### GESTIONE CANALI

DMX Channel 1: Red1  
 DMX Channel2: Green1  
 DMX Channel3: Blue1  
 DMX Channel 4: Dimmer 1  
 DMX Channel 5: Red2  
 DMX Channel 6: Green2  
 DMX Channel 7: Blue2  
 DMX Channel: Dimmer2  
 DMX Channel: Strobe

The PIX ON card is able to:

- A. Command and managing animations and effects on PWM
- B. Command and managing animations and effects in ON/OFF voltage
- C. Generate DMX commands
- D. Control in digital strips and independent led systems useful for graphic animation
- E. Control digital led systems managing independently each pixel for graphic animations and video with CUSTOM programs registered on board

## A-Command and Managing effects on PWM

The animation and effects control system in PWM is realized on 2 different outputs (Output group 1 & Output group 2), each one with 3 output ( B1- G1- R1 & B2- G2- R2 ) for autonomously and independently effects for a total of 6 output for each card. (picture 6)

#### Function mode:

- **A1)** Receive commands by console DMX 512
- **A2)** Stand Alone with Standard or Custom programs (\*)
- **A3)** With remote control

(\*) *The programs for effects as dimmer, strobe, color changing, rainbow could be managed by remote control.*

#### The PIX ON board is useful to manage in PWM:

- RGB full color led or R+G+B (flexible strips or rigid -serials of monoled and multichip led)
- Monochromatic led (flexible strips or rigid -serials of monoled and multichip led)
- High Brightness led and power led (with current control board)
- Wall Washer
- Monochromatic and RGB led spot
- Every lighting and scenographical led systems

The animation and effect which request more than 6 outputs could be realized and managed connecting in cascade N boards , each one with 6 outputs for a total number of 56 boards corresponding at 336 independent outputs for monochromatic animations autonomous ( $56 \times 6 = 336$  outputs) or at 112 RGB independent outputs ( $336 / 3 r+b+g = 112$  outputs).

The animation is managed by a MASTER board which command the other SLAVE cards, connected in cascade by a wire network with RJ45 plug in.

The signal need to be regenerated each 32 boards with a PIX ON card with the SPLIT/MASTER regeneration signal (see the picture 6).

### **A1) Functional mode PWM - commands received by console DMX 512**

The PIX ON board work with a standard DMX-512 protocol and use 9 channels from 512 available on a DMX universe.

The starting address is settled in "tens format" from the hundred-tens-unit by three rotary dip-switch. (see the picture 4).

The minimum address which can be set is 001 and in this case the board use 001-002-003-004-005-006-007-008-009 channels. The maximum address is 504 and the cannels will be: 504-505-506-507-508-509-510-511-512.

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#### For example:

Suppose to connect at a console 3 pcs DMX PIX ON and 2 motorized projectors with use each one 16 channels, the addresses will be settled as follows:

The first PIX ON : 001

The second PIX ON: 010

The third PIX ON: 019

First projector: 028

Second projector:044

The firs channel available for eventually other equipments will be 060.

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## Setting the board:

Position the 4 shaft from the Dip-Switch on the position: **OFF OFF OFF OFF**

Position the 3 rotary dip-switch in base of the desired channel:

DMX channel (1...504) in base of the unit-tens-hundred logical method

**Ex:** to set the channel **38**:

Rotary dip switch hundreds on **0**

Rotary dip switch tens on **3**

Rotary dip switch unit on **8**

Each PIX ON can receive commands on the first 8 address sequentially at the first address fixed (for a total of 9 address).

**Ex:** if on the rotary dip switch will be set the number 013 will have the following sequence:

DMX channel 13: Red 1° group

DMX channel 14: Green 1° group

DMX channel 15: Blue 1° group

DMX channel 16 : Dimmer 1° group

DMX channel 17: Red 2° group

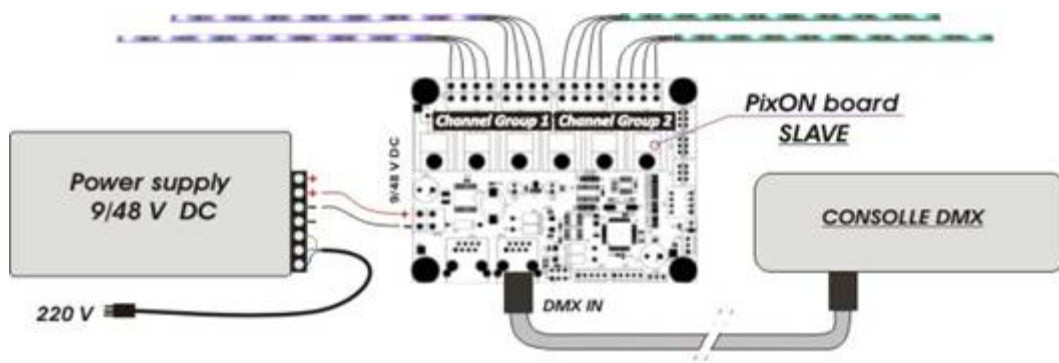
DMX channel 18: Green 2° group

DMX channel 19: Blue 2° group

DMX channel 20 : Dimmer 2° group

DMX channel 21: Strobe common at the 1° and 2° group

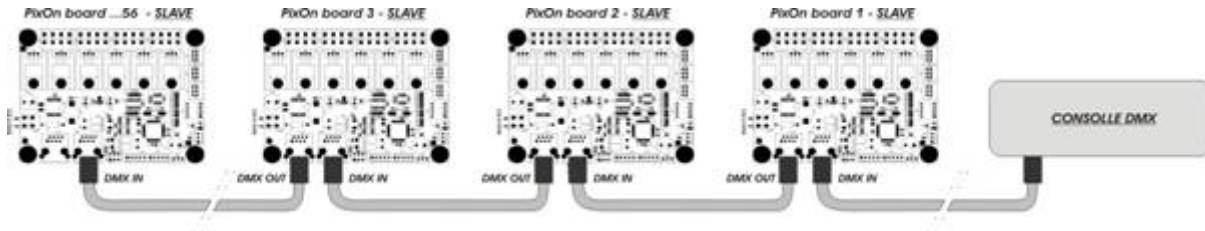
Insert the RJ 45 cable date from the console to the DMX IN from the PIX ON board. (see the picture 1) .



Picture 1

The PIX ON boards could be connected in cascade by network cable with RJ45 plug in, as follows:

- 1) From the console the **RJ45 cable connect it on the DMX IN** from the first PIX ON SLAVE (see the [picture 6](#)).
- 2) Connect the first to the second PIX ON board introducing the network cable from the first board **DMX OUT** to the second board **DMX IN** and so on for the remaining boards, up to connect a max of 56 boards with different addresses. (see the [picture 2](#))



Picture 2

A DMX console at 512 channels, referred only at PIX ON board, can manage up to 56 boards, each one with different address.

In case of the same address to all the PIX ON board , are no limits to the max number of boards connected , only those one to position a **PIX ON with SPLIT/ MASTER function** each 32 boards (signal regeneration). (see the [picture 6](#))

**Note:** The signal will be regenerated inserting a PIX ON card on the SPLIT/ MASTER function in the following situation:

- 1) Each 32 boards
- 2) In case of longer than 15 meters cable between a board and other

**A2) Function mode PWM Stand Alone with Standard or Custom programs**

DMX PIX ON is supplied with a standard program which make color change effects, sequentially and stroboscopic simultaneously and / or independently on the two groups of the outside channels. (see the [picture 3](#))

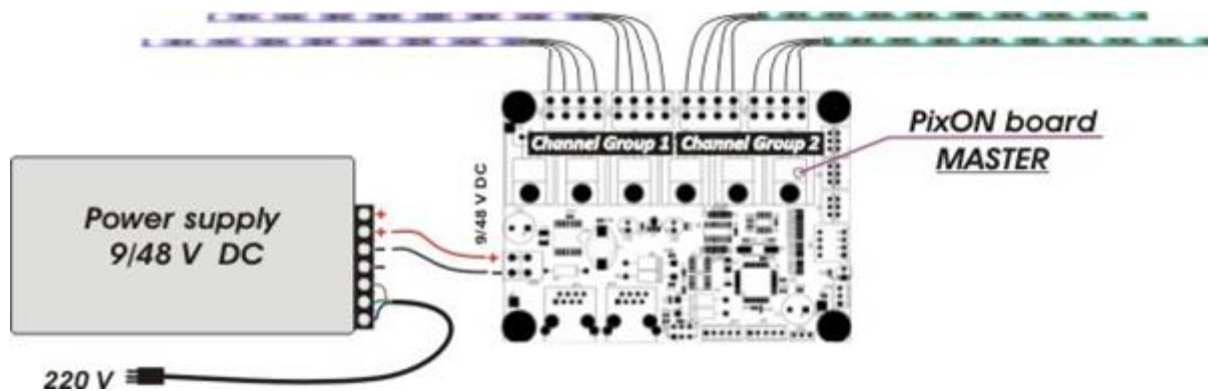
This effects could be activated from the rotary dip switch following the design. To modify the color changing speed it's necessary to use an potentiometer plugged to the PIX ON board. (see the [picture 6](#))

<b>RAINBOW EFFECT</b>	<b>Dip-Switch</b>	<b>ON OFF OFF OFF</b>
	<b>Potentiometer</b>	<b>Velocità cambio colore</b>
	<b>Hundreds</b>	0 - group A Red > Blue, group B Red > Blue 1 - group A Blue > Red , group B Red > Blue 2 - group A Red > Blue, group B Blue > Red 3 - group A Blue > Red, group B Blue > Red
	<b>Tens-unit</b>	0,0 Stroboscopic effect off 1 - 98 Stroboscopic effect speed 99 Stroboscopic effect random

RAINBOW EFFECT Cold colors	Dip-Switch	OFF ON OFF OFF
	Potentiometer	Velocità cambio colore
	Hundreds	0 - group A Red > Blue, group B Red > Blue 1 - group A Blue > Red , group B Red > Blue 2 - group A Red > Blue, group B Blue > Red 3 - group A Blue > Red, group B Blue > Red
	Tens-unit	0,0 Stroboscopic effect off 1 - 98 Stroboscopic effect speed 99 Stroboscopic effect random
RAINBOW EFFECT Hot colors	Dip-Switch	ON ON OFF OFF
	Potentiometer	Velocità cambio colore
	Hundreds	0 - group A Red > Blue, group B Red > Blue 1 - group A Blue > Red , group B Red > Blue 2 - group A Red > Blue, group B Blue > Red 3 - group A Blue > Red, group B Blue > Red
	Tens-unit	0,0 Stroboscopic effect off 1 - 98 Stroboscopic effect speed 99 Stroboscopic effect random

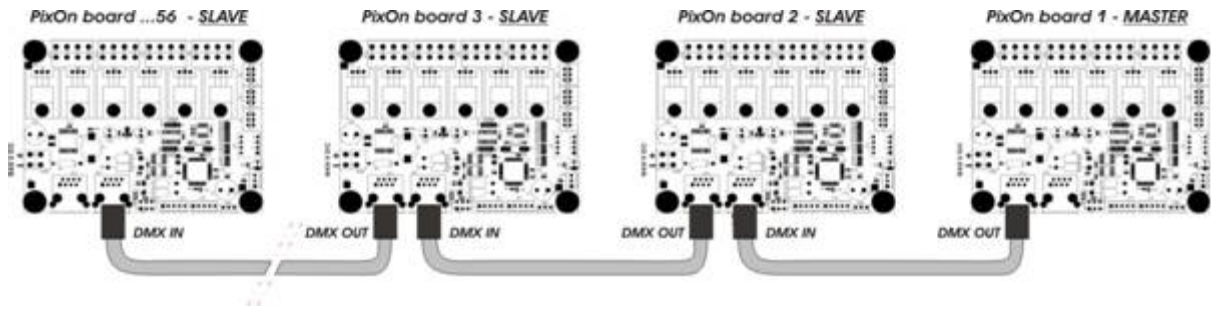
Ex: group A Blue > Red , group B Red > Blue

Means that will be a color changing effect of the rgb led connected to group A with the light emission of whole chromaticity from blue to red and simultaneously and independently from group A , the color changing from group B rgb led with light emission of whole chromaticity from Red to Blue.



Picture 3

The PIX ON boards could be connected in cascade by RJ45 cables (see the picture4).



Picture 4

The PIX ON board for the animation effects on PWM could be supplied by request:

- With custom programs
- With Settings for managing with remote control

### A3) Function mode PWM with remote control

Fix the dip-switch on the position **ON OFF ON ON**.

Press the **TV** button to activate **the programs for fixed colors**.

- The buttons **P+** and **P-** select one of the 21 programmed colors
- The buttons **Volume +** and **Volume -** adjust the dimmer colors

Press the **AV** button to activate the **RAINBOW** program,

- The buttons **P+** and **P-** select one of the 12 rainbow programs

Rainbow effect program 1	group A Red > Blue	group B Red > Blue
Rainbow effect program 2	group A Blue > Red	group B Red > Blue
Rainbow effect program 3	group A Red > Blue	group B Blue > Red
Rainbow effect program 4	group A Blue > Red	group B Blue > Red
Rainbow effect program 5	group A Red > Blue	group B Red > Blue
Rainbow effect program 6	group A Blue > Red	group B Red > Blue
Rainbow effect program 7	group A Red > Blue	group B Blue > Red
Rainbow effect program 8	group A Blue > Red	group B Blue > Red
Rainbow effect program 9	group A Red > Blue	group B Red > Blue
Rainbow effect program 10	group A Blue > Red	group B Red > Blue
Rainbow effect program 11	group A Red > Blue	group B Blue > Red
Rainbow effect program 12	group A Blue > Red	group B Blue > Red

#### Note:

If the rotary dip switch **UNIT** is positioned to a **PAIR** number, the **Volume +** and **Volume -** buttons adjust the **RAINBOW** color changing speed sequence and the dimmer is at 100% (max luminosity)

If the rotary dip switch **UNIT** is positioned to an **UNPAIR** number, the **Volume +** and **Volume -** buttons adjust the dimmer and the speed could be set by potentiometer inserted to the POTENTIOMETER plug (see the picture 4).

Press the **Mute** button to activate the program STROBE effect (STROBOSCOPIC).

- The buttons **Volume +** and **Volume -** adjust the speed strobe.
- The buttons **P+** and **P-** select one of the 21 colors, the dimmer is at 100% (max luminosity).

Each time you push one of the buttons **TV**, **AV**, **Mute** you turn to the initial values.

## **B - Command and managing effects in voltage (ON/OFF)**

The animation and effects in ON/OFF is realized on 2 different outputs (Output group 1 & Output group 2), each one with 3 output ( B1- G1- R1 & B2- G2- R2 ) for autonomously and independently effects for a total of 6 output for each board. (see the picture 6)

**Function mode:**

- B1) Stand alone with standard or custom programs (\*)
- B2) With remote control

(\*) The animation effects managed by **ON/OFF**, **CHASING**, **QUEUING**, **IN/OUT**, **RANDOM** programs could be controlled by remote control

The PIXON board with ON/OFF managing is useful to:

- Command to start and stop ON/OFF voltage ( related to the power supply voltage , variable from 9 to 48 V DC) which became active in base of the sequences and timers of the standard programs set in Stand Alone or realized custom in base of the client request.

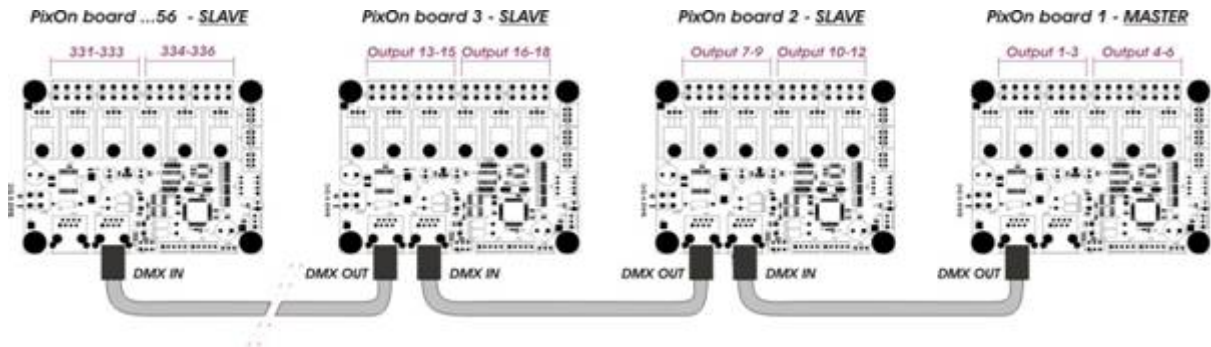
The voltage commands manage directly or indirectly (with relay, tryack or electrical switch) each lighting system , motorized, domotic.

**B1) Function mode ON/OFF Stand Alone with Standard program**

CHASING Effect	Dip-Switch	OFF OFF ON OFF
	Potentiometer	Speed sliding
	Hundreds MASTER	0 - left > right 1 - right 2 >left 2 - alternate
	Tens-unit MASTER	Board numbers used (from 1 to 56) <b>Note:</b> to be settled only to the MASTER card
	Dip Switch SLAVE	OFF OFF OFF OFF
	Hundreds-Tens-Units SLAVE	DMX address settled by the rotary dip switch first SLAVE 10, second SLAVE 19, . last 504
QUEUEING Effect	Dip-Switch	ON OFF ON OFF
	Potentiometer	Speed sliding
	Hundreds MASTER	0 - left > right 1 - right 2 >left 2 - alternate
	Tens-unit MASTER	Board numbers used (from 1 to 56) <b>Note:</b> to be settled only to the MASTER card
	Dip Switch SLAVE	OFF OFF OFF OFF
	Hundreds-Tens-Units SLAVE	DMX address settled by the rotary dip switch first SLAVE 10, second SLAVE 19, . last 504
IN/OUT Effect	Dip-Switch	OFF ON ON OFF
	Potentiometer	Speed sliding
	Hundreds MASTER	0 - left > right 1 - right 2 >left 2 - alternate
	Tens-unit MASTER	Board numbers used (from 1 to 56) <b>Note:</b> to be settled only to the MASTER card
	Dip Switch SLAVE	OFF OFF OFF OFF
	Hundreds-Tens-Units SLAVE	DMX address settled by the rotary dip switch first SLAVE 10, second SLAVE 19, . last 504
RANDOM Effect	Dip-Switch	ON ON ON OFF
	Potentiometer	Speed sliding
	Hundreds MASTER	0 - left > right 1 - right 2 >left 2 - alternate
	Tens-unit MASTER	Board numbers used (from 1 to 56) <b>Note:</b> to be settled only to the MASTER card
	Dip Switch SLAVE	OFF OFF OFF OFF
	Hundreds-Tens-Units SLAVE	DMX address settled by the rotary dip switch first SLAVE 10, second SLAVE 19, . last 504

The animation and effect which request more than 6 outputs could be realized and controlled connecting in cascade N boards , each one with 6 outputs for a max 56 boards corresponding at 336 independent outputs (56 x 6 = 336 outputs).

The animation is managed by a **MASTER** controller which command other **SLAVE** cards (see the picture 3) connected in cascade by a wire network with **RJ45** plug in.



Picture 5

**Note:** The signal need to be regenerated each 32 boards with a **PIX ON with SPLIT/ MASTER** function (signal regeneration). (see the picture 6)

The PIX ON controller to managing animation in ON/OFF could be supplied on request with:

- Custom programs
- Settled to manage effects from the remote control

## B2) Function mode ON/OFF with remote control

Fix the dip-switch on the position **OFF ON ON ON**.

Press the **MUTE** button to select one by one all the animation combination programs **Chasing - Queuing - In&Out - Random** and the direction of the start sequence - **totally 8 types**.

- The buttons **P+** and **P-** adjust the speed sliding

The boards number is settled with the rotary switch following the unit-tens method like on the function without remote control.

## C - DMX generated commands

The PixOn board is able to generate DMX commands in base of the custom programs preinstalled, replacing in this way a DMX console.

**Function mode:**

- Stand Alone with CUSTOM program (\*)
- With remote control

(\*) The DMX commands, directed to an interface able to receive this protocol could be also managed by remote control.

The PIX ON boards is useful to DMX control for:

- Equipments which receive DMX commands
- Domotic

**D - Control digital led systems managing independently each pixel for graphic animations  
PIXEL DIGITAL LED**

The PIX ON board is able to generate digital commands to realize animation effects to stripes or monochromatic or rgb led systems controlling independently each pixel piloted by an IC microprocessor.

Function mode:

- D1) Stand Alone with Standard or Custom program
- D2) With remote control

**D1) Function mode of PIXEL DIGITAL LED Stand Alone with Standard program**

Effect: cascade pixel sliding	Dip-Switch	OFF OFF OFF ON
	Potentiometer	Speed sliding
	Hundreds	0 - left > right 1 - right 2 > left 2 - alternate
	Tens-unit	from 0 to 62 - fix colors from 63 to 99 - rainbow variable speed
Effect: cascade 3 pixel sliding	Dip-Switch	ON OFF OFF ON
	Potentiometer	Speed sliding
	Hundreds	0 - left > right 1 - right 2 > left 2 - alternate
	Tens-unit	from 0 to 62 fix colors from 63 to 99 rainbow variable speed
Effect: 3 pixel chasing	Dip-Switch	OFF ON OFF ON
	Potentiometer	Speed sliding
	Hundreds	0 - left > right 1 - right 2 > left 2 - alternate
	Tens-unit	from 0 to 62 - fix colors from 63 to 99- rainbow variable speed
Effect: graduate lighting	Dip-Switch	ON ON OFF ON
	Potentiometer	Speed sliding
	Hundreds	0 - left > right 1 - right 2 > left 2 - alternate
	Tens-unit	from 0 to 62 - fix colors from 63 to 99 - rainbow variable speed

<b>Effect: 3 pixel sliding alternate</b>	<b>Dip-Switch</b>	<b>OFF OFF ON ON</b>
	<b>Potentiometer</b>	<b>Speed sliding</b>
	<b>Hundreds</b>	0 - left > right 1 - right 2 > left 2 - alternate
	<b>Tens-unit</b>	from 0 to 62 - fix colors from 63 to 99 - rainbow variable speed

The PIX ON board to manage animation effects PIXEL DIGITAL LED could be supplied by request with:

- Custom program
- Settled to manage effects by remote control

## D2) Function mode of PIXEL DIGITAL LED with remote control

Fix the dip-switch on the position **ON ON ON ON**.

Press the **Mute** button and select all the combination for digital animation one by one, for a total of 15 effects.

### Cascade pixel sliding animation

Animation n°1 : pixel sliding cascade left > right

Animation n°2 : pixel sliding cascade right > left

Animation n°3 : pixel sliding cascade alternate

### Cascade 3 pixel sliding animation

Animation n°4 : 3 pixel sliding cascade left > right

Animation n°5 : 3 pixel sliding cascade right > left

Animation n°6 : 3 pixel sliding cascade alternate

### 3 pixel chasing animation

Animation n°7 : 3 pixel chasing left > right

Animation n°8 : 3 pixel chasing right > left

Animation n°9 : 3 pixel chasing alternate

### Graduate lighting animation

Animation n°10 : graduate lighting left > right

Animation n°11 : graduate lighting right > left

Animation n°12 : graduate lighting alternate

### Alternate 3 pixel sliding animation

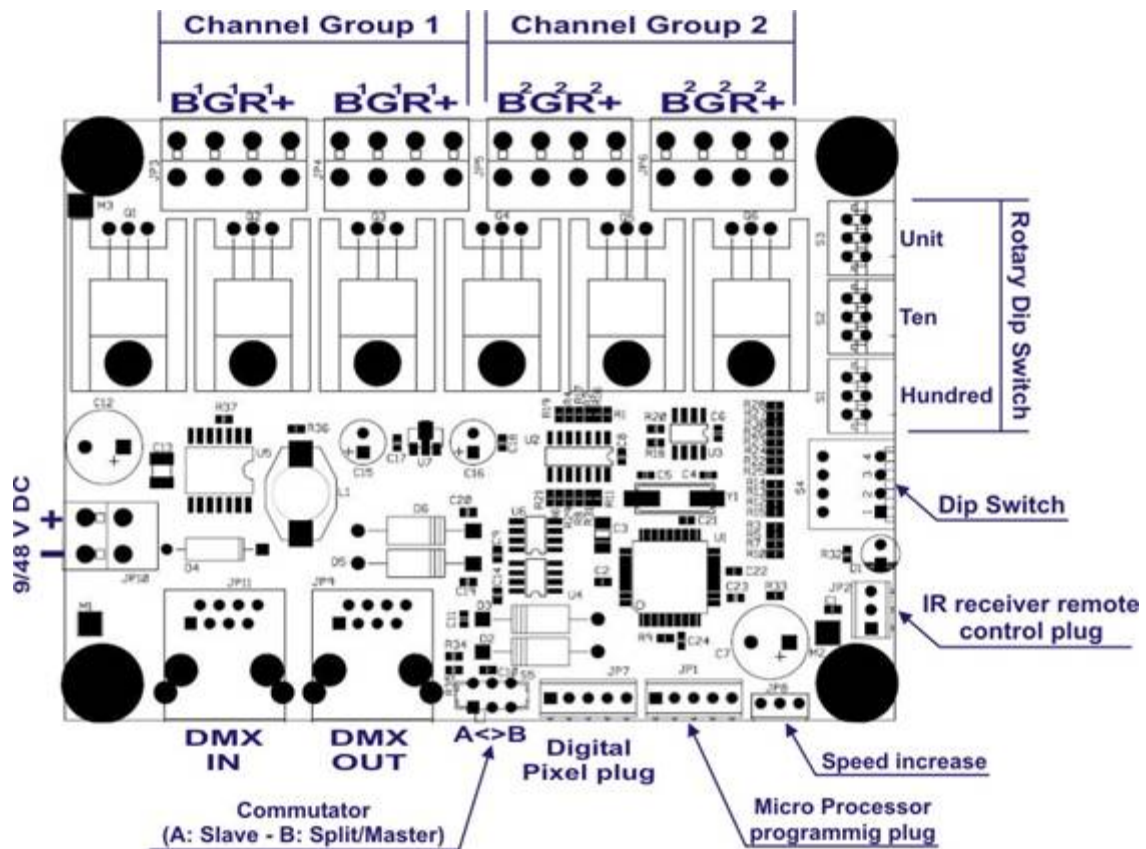
Animation n°13 : 3 pixel sliding alternate left > right

Animation n°14 : 3 pixel sliding alternate right > left

Animation n°15 : 3 pixel sliding alternate

Press the **TV** button and next **P+** and **P-** buttons and it is possible to change the color and alternate the rainbow speed.

Press the **AV** button and next **P+** and **P-** buttons and it is possible to adjust the sliding speed.




Picture 6

**Riepilogo Indirizzi del Dip Switch a 4 Vie che abilitano le funzioni della Scheda PixOn**







0	PWM DMX-512	OFF OFF OFF OFF
1	PWM Rainbow	ON OFF OFF OFF
2	PWM Cold Rainbow	OFF ON OFF OFF
3	PWM Hot Rainbow	ON ON OFF OFF
4	ON/OFF Chasing Effect	OFF OFF ON OFF
5	ON/OFF Queuing Effect	ON OFF ON OFF
6	ON/OFF In/Out Effect	OFF ON ON OFF
7	ON/OFF Random	ON ON ON OFF
8	Pixel Digital Strip cascade	OFF OFF OFF ON
9	Pixel Digital Strip 3 pixel cascade	ON OFF OFF ON
10	Pixel Digital Strip Chasing 3 pixel	OFF ON OFF ON
11	Pixel Digital Strip Chasing 3 pixel	ON ON OFF ON
12	Pixel Digital Strip gruppi 3 pixel alternate	OFF OFF ON ON
13	Telecomando Rainbow	ON OFF ON ON
14	Telecomando ON/OFF	OFF ON ON ON
15	Telecomando Pixel Digital Strip	ON ON ON ON

## REMOTE CONTROL PROGRAMMING

### Function mode

Insert the 2 battery 1,4V LR03 AM4 AAA type respecting the polarity  
The red button  signal of 3 flash lights means that was introduced correctly.

The remote control is ready to be programmed with 1011 code following the instructions:

1	Push the button TV-STB at least 10 seconds. Stop to push when the red button is lighting: the red button  start flash lighting
2	On the next 10 seconds start to compose the 4 number code 1011 as follows: N° 1: push one time <b>Prog+</b> button and after push  button N° 0: push one time <b>Vol+</b> button and after push  button N° 1: push one time <b>Prog+</b> button and after push  button N° 1: push one time <b>Prog+</b> button and after push  button
3	After insert the last number, observe that the red button  emitting 2 short flash light = <b>OK</b> <b>The code was insert correctly</b> If has a long light , means was an error and need to repeat the operation.
4	If the code was insert correctly start to use the remote control and check the PIXON board functions.

