PIXMOB

WAVE NODE

USER MANUAL

Rev0

Revision History

Revision	Date	Description
0	20.07.2022	Initial release

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1. General Information

The Wave Node is a Radio Frequency transmitter designed by Pixmob, intended for low power broadcasting. The data transmitted is aimed at wirelessly controlling LED-based devices.

2. Glossary

Pixel: Refer to a wearable device embedding an LED and being controlled by the Wave Node.

3. Device Safety

General safety notes

- The device is not water resistant
- Do not attempt to open the device

FCC Caution

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.
Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
Note: This equipment has been tested and found to comply with the limits for a Class
B digital device, pursuant to part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off
and on, the user is encouraged to try to correct the interference by one or more of the
following measures:
-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.
To maintain compliance with FCC’s RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.

4. Technical specifications

Power specifications

Input voltage	5VDC
Current	500mA

RF specifications

Type	Intentional transmitter
Frequency	915MHz
Transmission power	+14dBm/25mW
Modulation type	OOK
Antenna type	Detachable (whip)

5. Installation

- Connect the antenna (provided) to the Wave Node
    - Position the antenna vertically
- Plug in the USB cable - type A end - (provided) to the power brick (provided)
- Plug in the USB cable - type B end - (provided) to the Wave Node
- Operate the device as described in the Operation section

6. Operation

User interface

- **1: LCD Screen:** Display the different Menus and selected parameters.
- **2: LED Status:** The button LED will strobe when RF Output is ON.
- **3: Push Buttons :**
    - Menu Selection
    - Config Line 1
    - Config Line 2
    - Config Line 3
- 4: **RF Output interface:** The middle LED will strobe when RF output is ON.

Functions and menu navigation

1. Group Programmation:

Program a new group in the pixels.

Part	Description	Values
Title	Title of the Menu	
Target Group	Group to program on pixels	1 → 31
Config Line 1	Push the corresponding button to increase the target group	
Config Line 2	Push the corresponding button to decrease the target group	
RF Out ON/OFF	Push the corresponding button to Start/Stop the RF Sending	ON/OFF

2. Group Show:

Used to determine the group of a pixel. Only the pixels with the chosen group will react and display green.

Part	Description	Values
Title	Title of the Menu	
Target Group	Group of pixels that will flash green	1 → 31
Config Line 1	Push the corresponding button to increase the target group	
Config Line 2	Push the corresponding button to decrease the target group	
RF Out ON/OFF	Push the corresponding button to Start/Stop the RF Sending	ON/OFF

3. Revision:

Used to check the firmware version of the pixels. Pixels will flash white to acknowledge the command and will flash green if the version is correct.

Part	Description	Values
Title	Title of the Menu	
Target Rev	The pixels with targeted firmware revision will flash green	1.1 → 63.63
Config Line 1	Push the corresponding button to increase the target group	
Config Line 2	Push the corresponding button to decrease the target group	
RF Out ON/OFF	Push the corresponding button to Start/Stop the RF Sending	ON/OFF

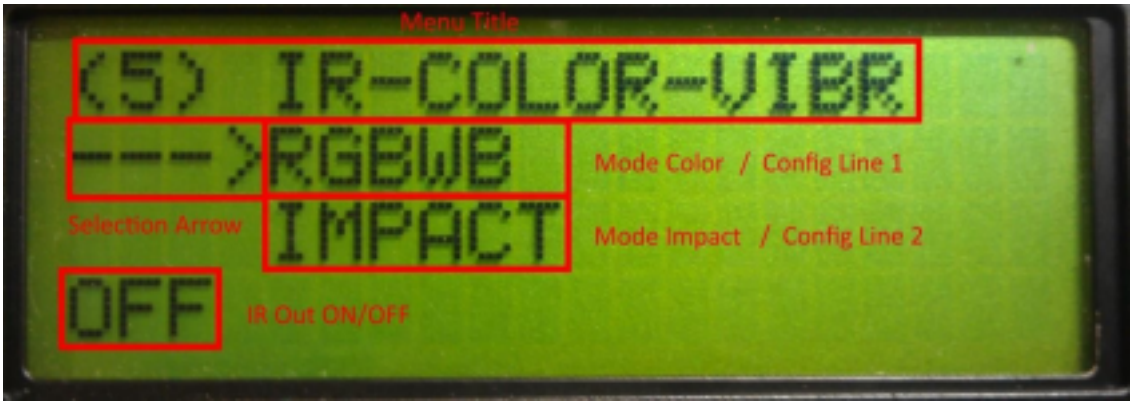
4. White:

Send white color for the pixels to display. Useful to verify if all three color of the RGB LEDs are working.

Part	Description	Values
Title	Title of the Menu	
Brightness	The brightness of the color to display	25, 50, 75, 100 %
Config Line 1	Push the corresponding button to increase the brightness	
Config Line 2	Push the corresponding button to decrease the brightness	
RF Out ON/OFF	Push the corresponding button to Start/Stop the RF Sending	ON/OFF

5. RF Color:

Can send a series of RGB colors or a Color Wheel with impact mode. The Mode Color can be configure through the next Menu:



Part	Description	Values
Title	Title of the Menu	
Selection Arrow	Show the selected Mode (with the status LED)	
Config Line 1 / Mode Color	Push the corresponding button to select color mode	
Config Line 2 / Mode Impact	Push the corresponding button to select impact Mode	
RF Out ON/OFF	Push the corresponding button to Start/Stop the RF Sending	ON/OFF

6. Config RF (5):

Configure the “RF Color” Menu for the color Mode. Color, Bright and Time can be configure.

Part	Description	Values
Title	Title of the Menu	
Color	Show the selected Mode (with the status LED)	RGBWB, RGBWYCPB, WB
Bright	Push the corresponding button to select color mode	25, 50, 75, 100 %
Time	Push the corresponding button to select impact Mode	500ms, 1s, 2s, 4s

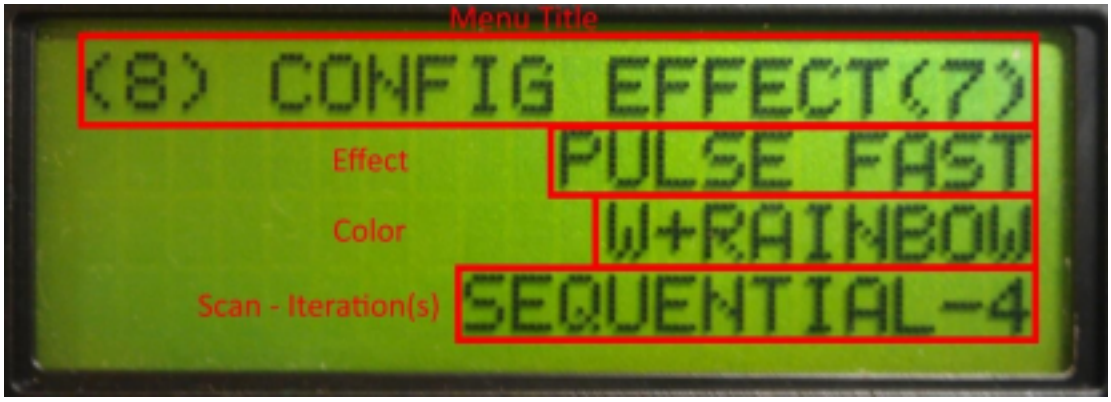
7. Program Effect:

Program an Impact Effect into the pixels. There are 3 pre-program effects and the possibility to create a custom one through the next menu.

Part	Description	Values
Title	Title of the Menu	
Effect choice	Selection of the effect to program	1, 2, 3, Custom
RF Out ON/OFF	Push the corresponding button to Start/Stop the RF Sending	ON/OFF

8. Config Effect (7):

Configure the “Effect Prog” Menu for the custom Effect. Effect, Color, Scan and Iteration can be configured.



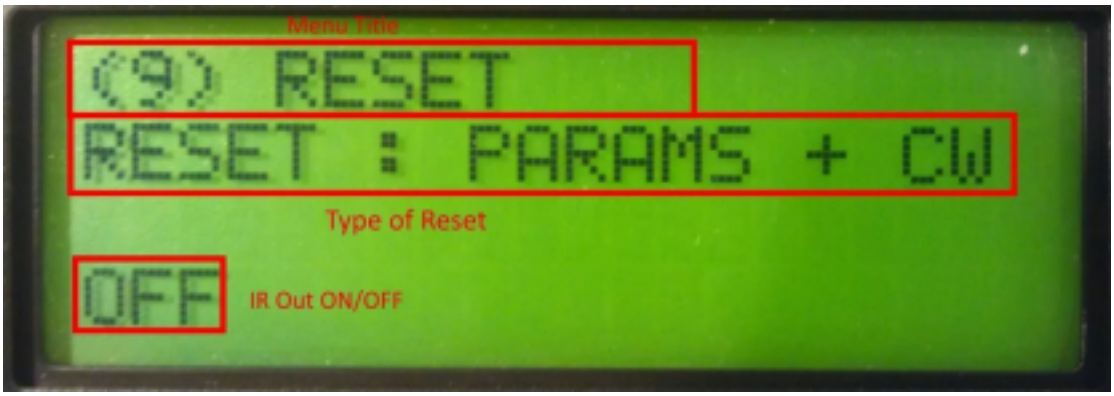
Part	Description	Values	
Title	Title of the Menu		
Effect	Selection of the effect (type of pulse)		
Color	The range in the color wheel	Red→Blue, Blue→Green, Green→Orange, red→Violet, Magenta→Cyan, Cyan→Yellow, Rainbow no White, Rainbow+White, White 100%, White 25→100%	
Scan - Iteration	Type of scan and iterations	Scan	Sequential/Random
		Iteration	1, 4, 16

9. Reset:

The Reset Menu requires a confirmation for turning ON the RF Output and you cannot change the type of reset while RF Out is ON. The Menu can reset the pixels parameters to default and/or can reprogram the color wheel to factory settings.

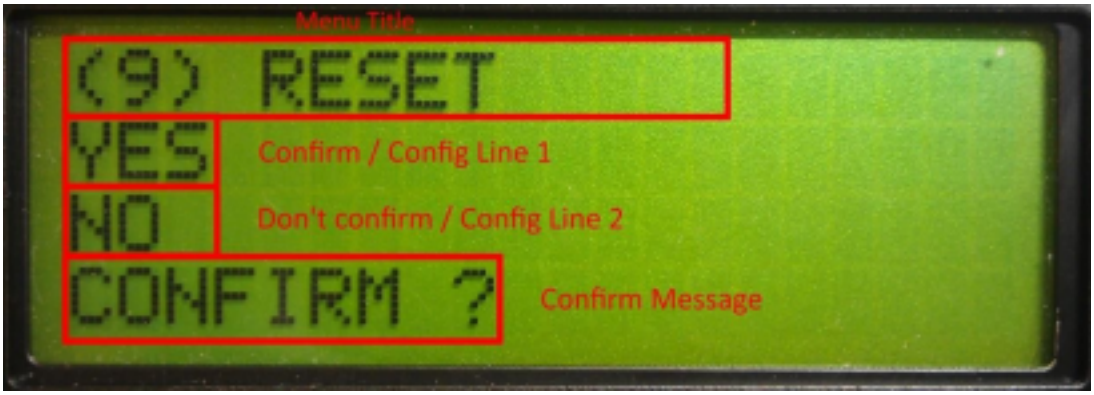
The pixels will display green when the reset is done.

Configuration Part:



Part	Description	Values
Title	Title of the Menu	
Type of Reset	Selection of the type of reset to send to pixels (Command 15 for the params)	Params Only, CW Only, Params + CW
RF Out ON/OFF	Push the corresponding button to Start/Stop the RF Sending	ON/OFF

Confirmation part:



Part	Description	Values
Title	Title of the Menu	
Confirm / Config Line 1	Push the corresponding button to confirm the reset	
Don't confirm / Config Line 2	Push the corresponding button to discard and go back to the previous menu.	
Confirm Message	The confirmation message.	

IC Caution:

- English:

This device complies with Industry Canada licence-exempt RSS standard(s).
Operation is subject to the following two conditions:
(1) This device may not cause interference, and
(2) This device must accept any interference, including interference that may cause undesired operation of the device.
To maintain compliance with RSS-102 RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.

- French:

Le présentappareilestconf orme aux CNR d' Industrie Canada applicables aux appareils radio exempts de licence. L'exploitationestautorisée aux deux conditions suivantes:
(1) l'appareil ne doit pas produire de brouillage, et
(2) l' utilisateur de l'appareildoit accepter tout brouillageradioélectriquesubi, mêmesi le brouillageest susceptible d'encompromettre le fonctionnement.
Pour être conforme aux lignes directrices d'exposition RF RSS-102, cet équipement doit être installé et exploité à une distance minimale de 20cm entre le radiateur et votre corps: n'utilisez que l'antenne fournie.

This radio transmitter [7254A-ADJWAVNODE] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Antenna installation: Stick Antenna
Impedance: 50Ω
Antenna Gain: 1dBi Maximum

7. Appendices