





Pico Pocket Projector


IMPORTANT SAFETY INSTRUCTION




EYE SAFETY WARNINGS

 Avoid staring/facing directly into the projector beam at all times. Keep your back to the beam as much as possible.

 A stick or laser pointer is recommended to avoid the need for the user to enter the beam.

 When projector is used in a classroom, adequately supervise students when they are asked to point out something on the screen.

 In order to minimize power, use room blinds to reduce ambient light levels.

1. Do not block any ventilation openings. To ensure reliable operation of the projector and to protect from over heating, it is recommended to install the projector in a location that does not block ventilation. As an example, do not place the projector on a crowded coffee table, sofa, bed, etc. Do not put the projector in an enclosure such as a book case or a cabinet that restricts air flow.
2. Do not use the projector near water or moisture. To reduce the risk of fire and/or electric shock, do not expose the projector to rain or moisture.
3. Do not install near heat sources such as radiators, heaters, stoves or any other apparatus such as amplifiers that emits heat.
4. Do not use the projector in direct sunlight.
5. Do not use near any appliance generating a strong magnetic field.
6. Do not use the projector in areas susceptible to excessive dust and dirt.
7. Turn off the product before cleaning.
8. Turn off the product before removing the battery.
9. Disconnect the battery if the product is not being used for a long period of time.
10. Ensure that the ambient room temperature is within 5- 35°C.
11. Relative Humidity is 5 - 35°C, 80% (Max.), non-condensing.
12. Do not expose the battery to temperatures above +60°C (+140°F)
13. New or idle batteries can have short-term reduced capacity. Fully charge the battery before initial use.
14. Do not put the battery into your mouth.
15. Do not let the battery contacts touch another metal object.
16. Do not drop, throw or try to bend your product.
17. May explode if disposed of in fire.
18. Clean only with dry cloth.
19. Only use attachments/accessories specified by the manufacturer.
20. Do not use the unit if it has been physically damaged or abused. Physical damage/abuse would be (but not limited to):
 - Unit has been dropped.
 - Charger or plug has been damaged.
 - Liquid has been spilled on to the projector.
 - Projector has been exposed to rain or moisture.
 - Something has fallen in the projector or something is loose inside.
 Do not attempt to service the unit yourself. Opening, or removing covers may expose you to dangerous voltages or other hazards. Please contact your local reseller or service center before you send the unit for repair.
21. Do not let objects or liquids enter the projector. They may touch dangerous voltage points and short out parts that could result in fire or electric shock.
22. See projector enclosure for safety related markings.
23. The unit should only be repaired by appropriate service personnel.
24. Do not touch the projector for a long time while the projector is used.
25. CAUTION: Risk of Explosion if Battery is replaced by an Incorrect Type.
26. Dispose of Used Batteries According to the Instructions.

REGULATION & SAFETY NOTICES

This appendix lists the general notices of your Projector.

FCC notice

This device 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 device 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 device does cause harmful interference to radio or television reception, which can be determined by turning the device 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 device and receiver.
- Connect the device into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Notice: Shielded cables

All connections to other computing devices must be made using shielded cables to maintain compliance with FCC regulations.

Caution

Changes or modifications not expressly approved by the manufacturer could void the user's authority, which is granted by the Federal Communications Commission, to operate this device.

Operation conditions

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.

Notice: Canadian users

This Class B digital apparatus complies with Canadian ICES-003.

Remarque à l'intention des utilisateurs canadiens

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Declaration of Conformity for EU countries

- EMC Directive 2004/108/EC (including amendments)
- Low Voltage Directive 2006/95/EC
- R & TTE Directive 1999/5/EC. (if product has RF function)

DISPOSAL OF OLD ELECTRICAL & ELECTRONIC EQUIPMENT

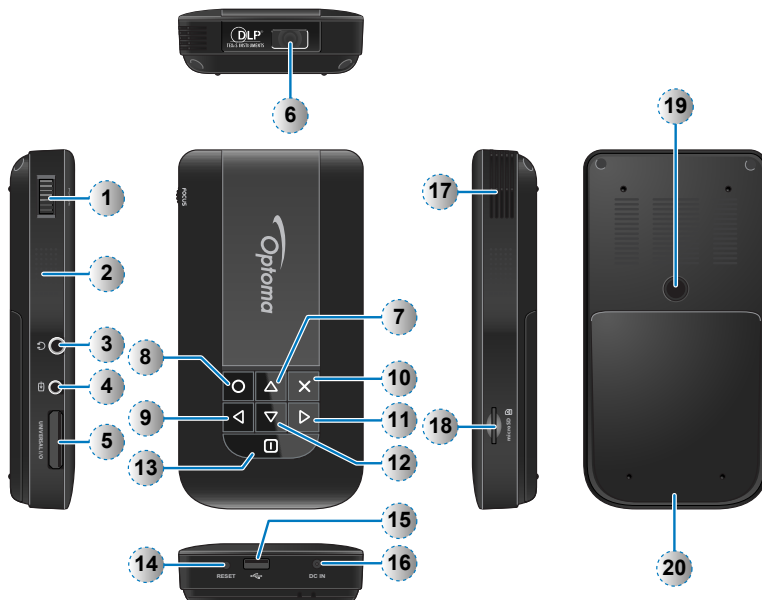
(Applicable throughout the European Union and other European countries with separate collection programs)

This symbol found on your product or on its packaging, indicates that this product should not be treated as household waste when you wish to dispose of it. Instead, it should be handed over to an applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product. The recycling of materials will help to conserve natural resources.



This symbol is only valid in the European Union. If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

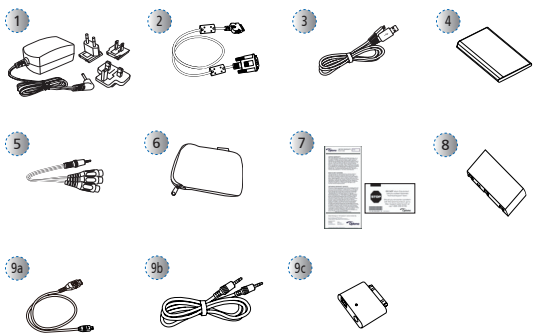




1. Focus Dial
2. Speaker
3. Audio Out Connector
4. AV Input Connector
5. VGA Input Connector
6. Lens
7. Up Button (Δ)
8. OK Button (○)
9. Left Button (◀)
10. Cancel / ESC Button (×)
11. Right Button (▶)
12. Down Button (▽)
13. Power / Home Button (⏻)
14. Reset Button
15. Micro USB port
16. DC Input
17. Air vent
18. MicroSD card Slot
19. Screw Hole for Tripod Converter
20. Battery Cover

<Note>
Items 7-12 are also function buttons.
Functions vary depending on the current mode.

PACKAGE OVERVIEW



Standard Accessory

1. Power adaptor with AC Plug
2. VGA Cable
3. USB Male Cable
4. Battery
5. AV Cable
6. Carrying Case
7. Warranty Card and Quick Guide
8. Extra Bezel

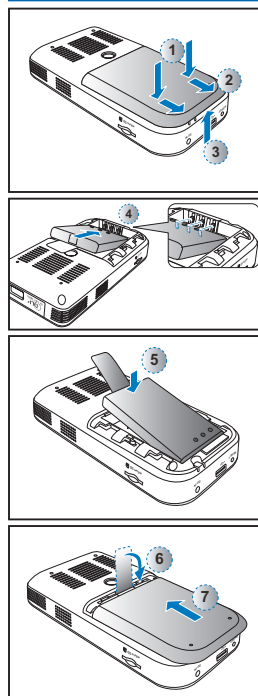
Optional Accessory

9. iPod Connection Kit
 - a. USB cable for iPod Connector
 - b. iPod Cable
 - c. iPod Connector

<Note>
The standard accessories may vary in each region due to different applications.

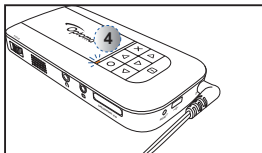
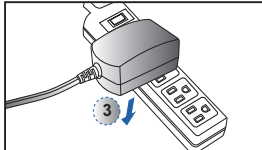
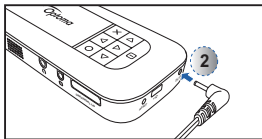
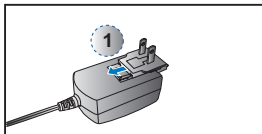
<Note>
The inclusive power plug head varies per region.

INSTALL THE BATTERY



1. Remove the battery cover. (①~③)
2. Align the battery contacts with the contacts in the battery compartment. (④)
3. Completely insert the battery with the battery pull tab extending underneath. (⑤)
4. Slide the battery cover back into place with the battery pull tab inserted inside. (⑥~⑦)

CHARGE THE BATTERY



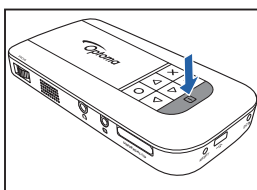
When the LED indicator lights red, the battery is low. Replace the battery immediately or connect the power adapter to charge the battery.

1. Insert the plug. (①)
2. Connect the charger. (②~③)
3. During charging, the LED indicator lights amber. (④)
4. The LED Charge Indicator lights green when the battery is fully charged. This process may take up to 2.5 hours.

<Note>

1. For LED indicator information, see page 18.
2. After the projector is turned off, the battery may not start charging right away due to over temperature protection. The projector will automatically start charging once it cools off.
3. The battery has a lifespan and ages every time it is charged and discharged. It will gradually lose its charging capability as it ages. Replace the battery at the end of its lifespan.

SWITCH ON / OFF

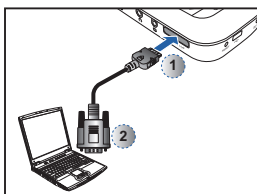


Press the Power button for 3 seconds to switch the projector on or off.

For first time use, the Language screen appears.

1. Highlight the desired language. (△▽◀▶)
2. Select the item. (○)

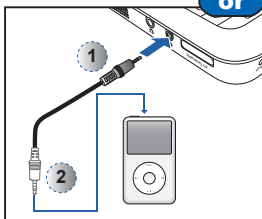
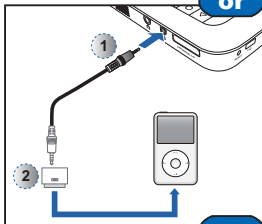
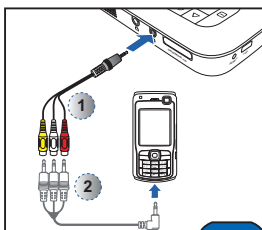
CONNECT INPUT SOURCE - VGA



Connect the VGA device. (①~②)

△ Insert the universal connector with the arrow mark facing up.

CONNECT INPUT SOURCE - VIDEO IN

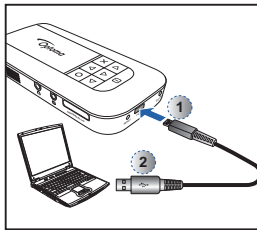


1. Connect the AV input source. (①~②)
2. Connect external speakers to the audio out connector of the projector. (③)

<Note>

1. All other brand and product names are trademarks or registered trademarks of their respective companies.
2. The cables connecting the video output devices are not supplied, please contact the device vendor.
3. iPod nano/iPod touch/iPhone/iPod classic (version 5 and above)
4. Designed for iPod/iPhone/Mobile phone/ PMP with TV out functions. Using with devices with audio signal voltage > 0.3Vrms is not recommended.
5. The optional USB cable for iPod Connector is used to charge the iPod device using a computer.

CONNECT INPUT SOURCE DATA TRANSFER

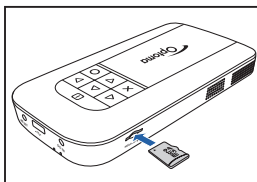


Connect a laptop or PC using the supplied Male USB Cable to transfer data to the Projector internal memory or the inserted microSD card. After connecting, switch the projector on.

<Note>

The laptop/PC can only detect the input source when the projector is switched on. The projection will stop when this connection is made.

INSERT MICROSD CARD



PK120 is designed to project image from the internal memory or via a microSD card.

Insert a microSD card into the slot with the gold contacts facing down.

<Note>

- To remove the microSD card, push the card to eject it from the slot.
- Do not remove the microSD card while the projector is projecting image from the card. This can cause data loss or damage the card.
- Supports microSD card size up to 32GB.

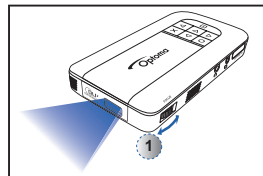
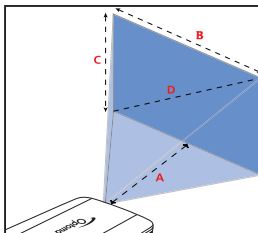
USE A TRIPOD STAND



Screw a standard tripod into the screw hole on the projector.

<Note>
The tripod is an optional accessory.

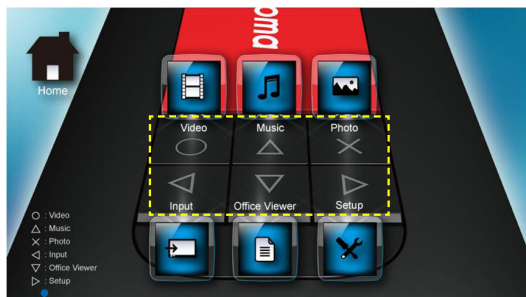
Projection Distance (A)		Screen Size - Width (B)		Screen Size - Height (C)		Screen Diagonal (D)	
Meter	Inch	(mm)	(inch)	(mm)	(Inch)	(mm)	(Inch)
0.500	19.7	227	8.9	128	5.0	261	10.3
0.700	27.6	318	12.5	179	7.0	365	14.4
0.975	38.4	443	17.4	249	9.8	508	20.0
1.500	59.1	662	26.8	384	15.1	782	30.8
2.000	78.7	909	35.8	511	20.1	1043	41.1
2.500	98.4	1136	44.7	639	25.2	1304	51.3
3.215	126.6	1461	57.5	822	32.4	1677	66.0



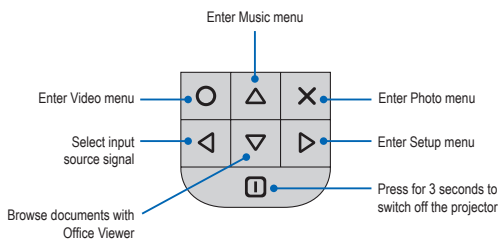
Adjust the focus (1) until the image is clear.

HOW TO USE THE MENU

Home menu



Button guide



- Press the corresponding button of the desired option.
 - Press X to go back a previous screen.
 - Press [] to return to the Home menu.
- Or, press for 3 seconds to switch off the projector.

<Note>
A button guide appears on the lower left corner of most screens. The guide varies depending on the current mode. Press the corresponding button to select the option or operation.

Items



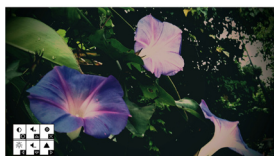
Video menu



Music menu



Photo menu



Input source screen



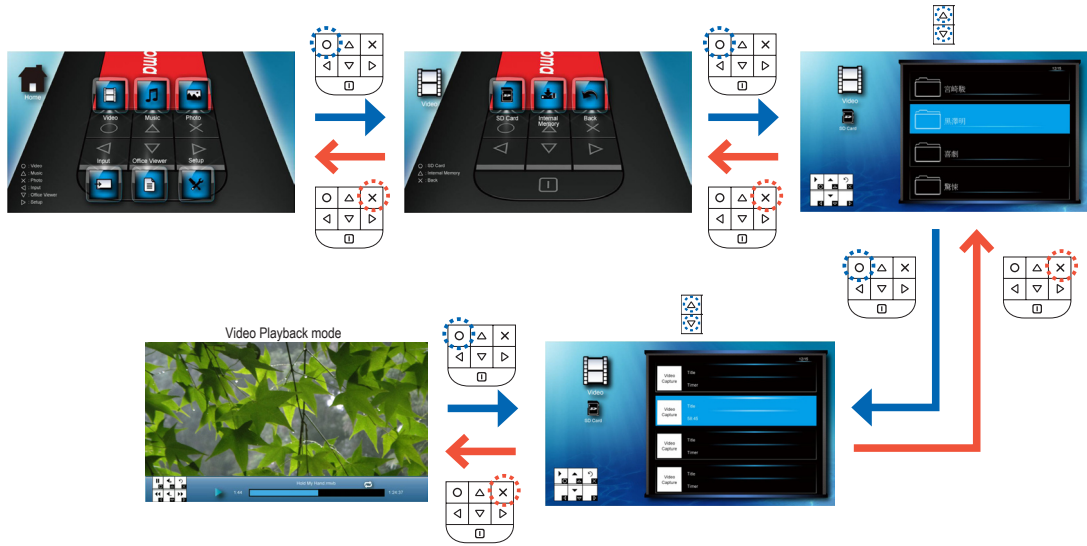
Office Viewer menu



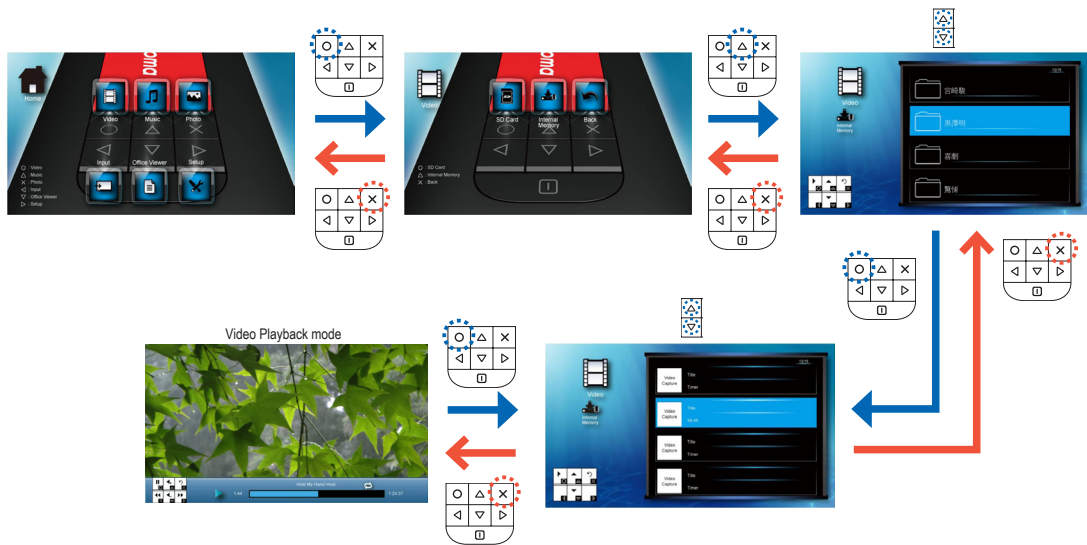
Setup menu

HOW TO PLAY VIDEOS - SOURCE: INTERNAL MEMORY / MICROSD CARD

Playing Videos from the MicroSD Card



Playing Videos from the Internal Memory



HOW TO PLAY VIDEOS - PLAYBACK MODE



- Adjust volume
- Pause/Play
- Fast forward
- Rewind
- Return to Home menu

Repeat Icons

- Repeat all
- Repeat one current video
- Repeat off

<Note>
To change repeat settings, see Video Settings below.

VIDEO SETTINGS

- Repeat all
- Repeat one
- Repeat disabled
- Browser display small icon
- Browser display large icon

COMPATIBILITY: VIDEOS

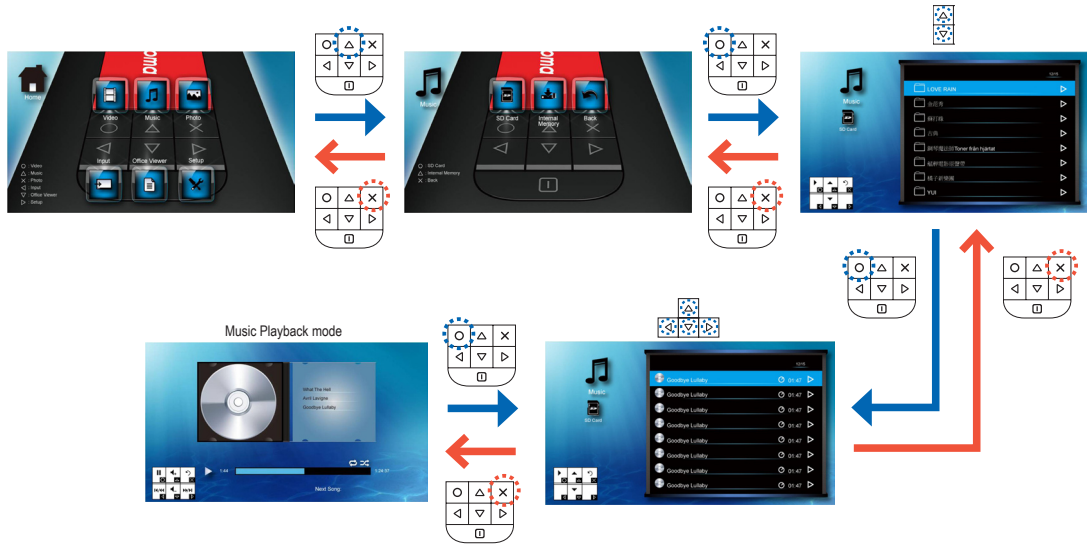
Compatible Video Format

File Format	Video Format	Max Res.	Profile	File Format	Video Format	Max Res.	Profile	File Format	Video Format	Max Res.	Profile
AVI MOV MP4 3GP	H.264 MJPEG H.263-	D1 30fps	Baseline	AVI 3GP MOV WMV	MPEG4	D1 30fps	Simple Profile	AVI MOV	MJPEG	800x480 30fps	Baseline
				AVI WMV	Xvid	D1 30fps	Baseline	FLV	Sorenson Spark	800x600 30fps	Baseline

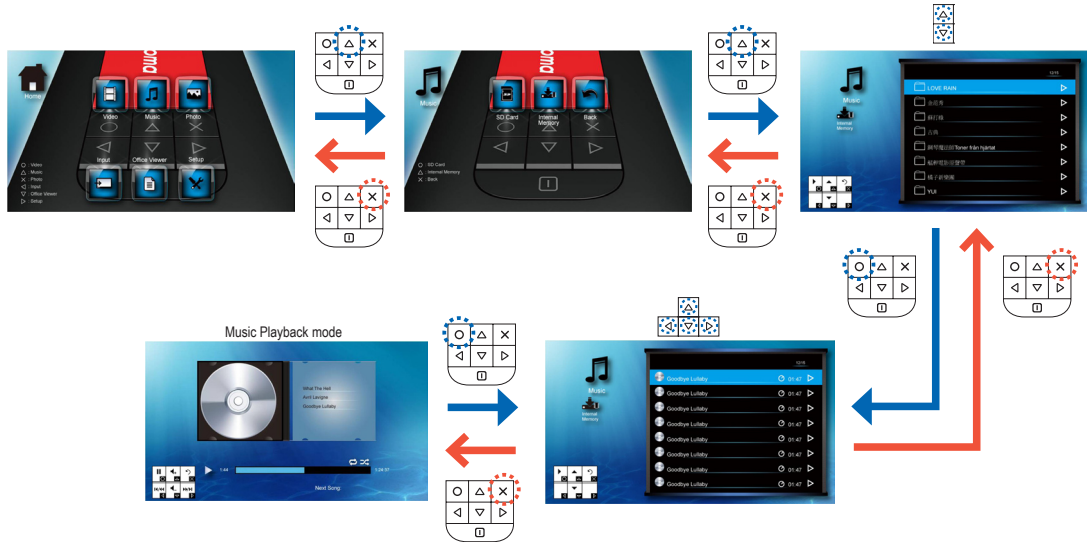
<Note>
Video format does not support content with B-Frame function.

HOW TO PLAY MUSIC - SOURCE: INTERNAL MEMORY / MICROSD CARD

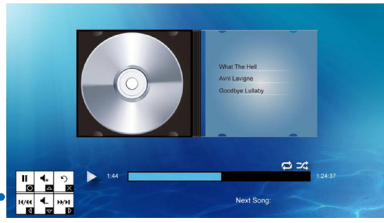
Playing Music from the MicroSD Card



Playing Music from the Internal Memory



HOW TO PLAY MUSIC - PLAYBACK MODE



Adjust volume

Pause/Play

Fast forward

Rewind

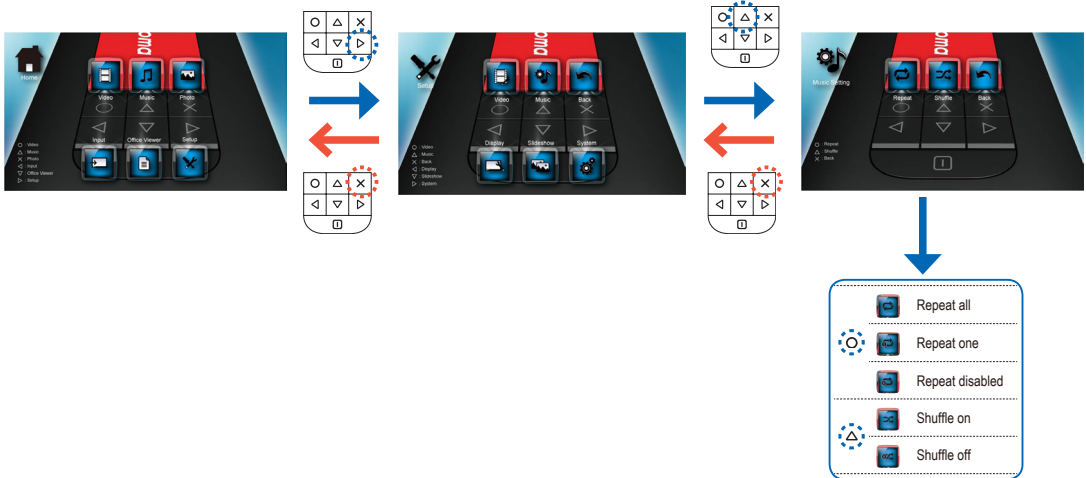
Return to Home menu

Repeat / Shuffle Icons

- Repeat all
- Repeat one current video
- Repeat off
- Shuffle on
- Shuffle off

<Note>
To change repeat or shuffle settings, see Music Settings below.

MUSIC SETTINGS



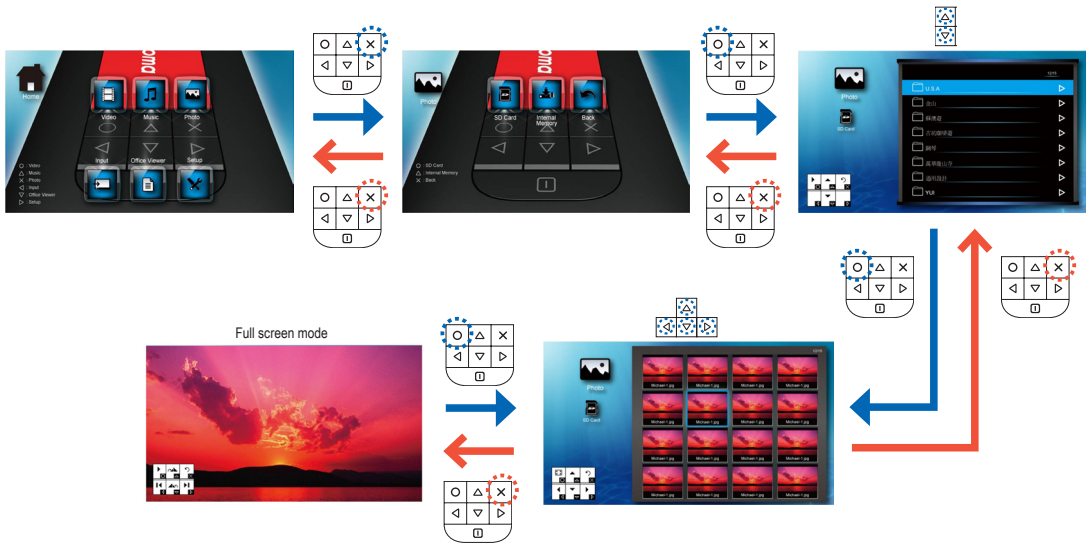
COMPATIBILITY: MUSIC

Compatible Audio Format

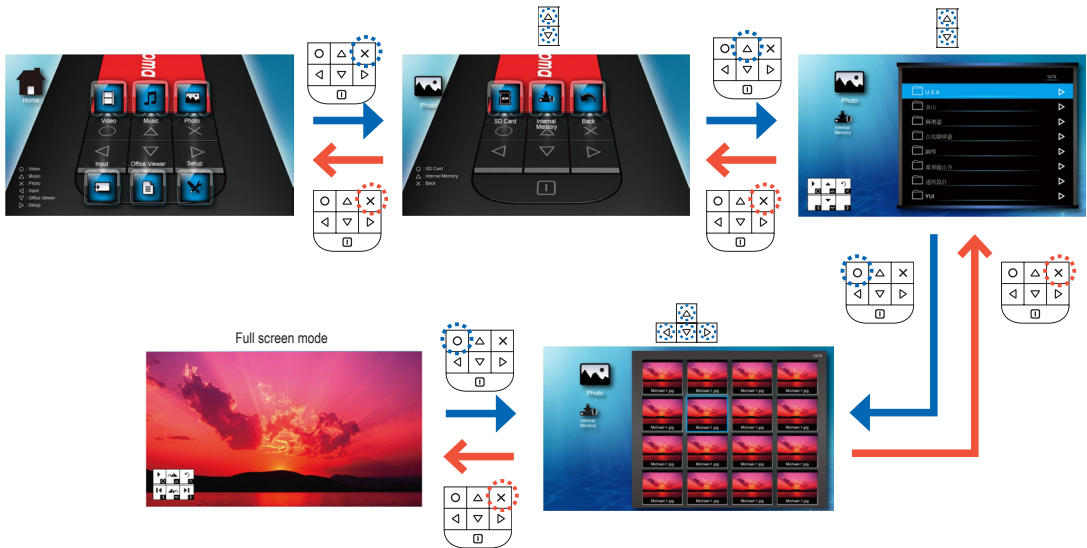
File Format
AAC
MP3
PCM
ADPCM
WMA
AMR
APE
Vorbis

HOW TO VIEW PHOTOS - SOURCE: INTERNAL MEMORY / MICROSD CARD

Viewing Photos from the MicroSD Card



Viewing Photos from the Internal Memory



COMPATIBILITY: PHOTO

Compatible Photo Format

File Format	File Extension
BMP	*.bmp,
JPG	*.jpg
JPEG	*.jpeg

<Note>
PK120 supports the following photo resolution:
 • Bitmap file up to 2M (megapixels)
 • Jpeg file up to 7M (megapixels)

HOW TO VIEW PHOTOS - MODE: FULL SCREEN / SLIDESHOW

Full Screen Mode

Play slideshow		Rotate 90° clockwise	
Next photo		Rotate 90° counter-clockwise	
Previous photo		Return to Home menu	

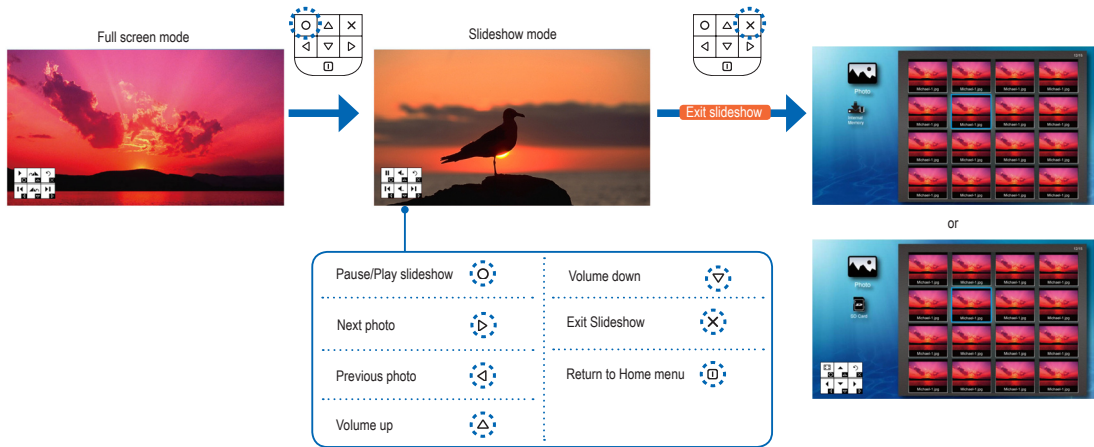


Slideshow Mode

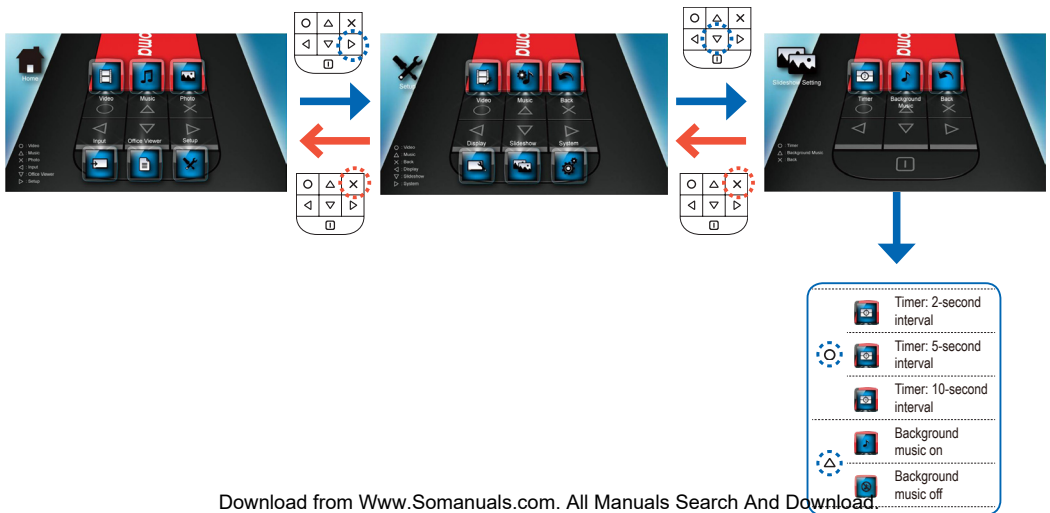
In Slideshow mode, photos are played continuously at a specified interval time while playing music stored in the internal memory as background.

<Note>
Only music files stored in the internal memory can be played as background music.

<Note>
To change slideshow interval settings and enable/disable background music, see Slideshow Settings below.

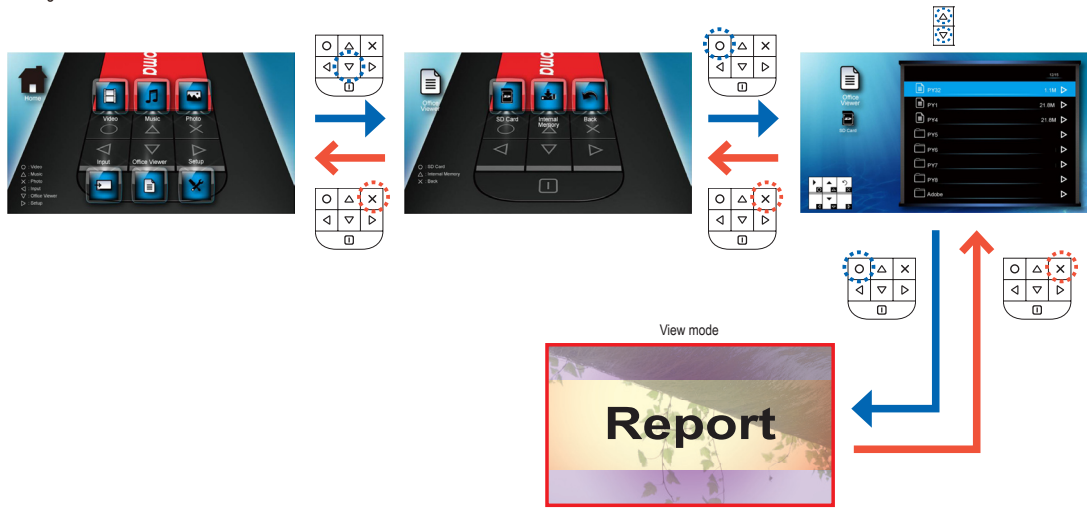


SLIDESHOW SETTINGS

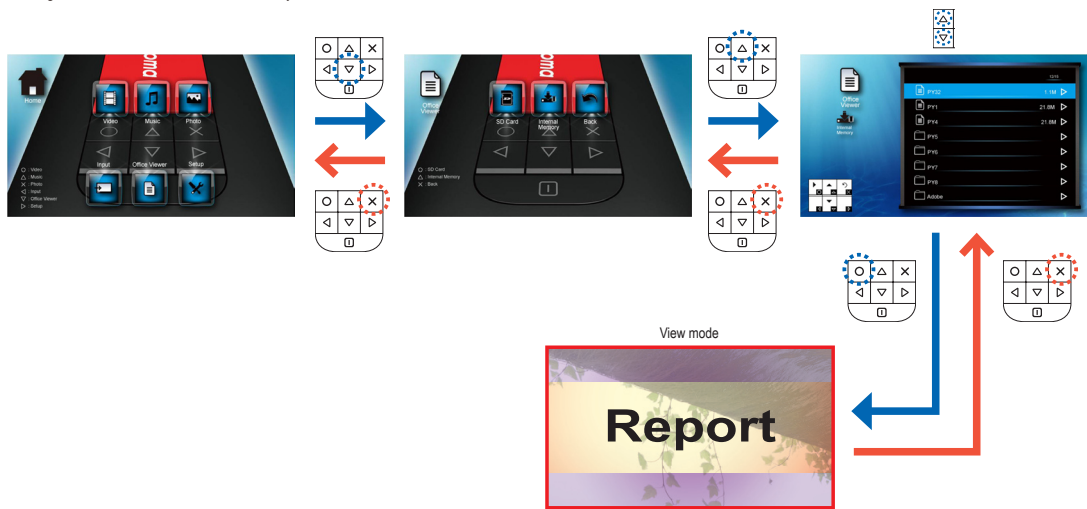


HOW TO VIEW DOCUMENTS - SOURCE: INTERNAL MEMORY / MICROSD CARD

Viewing Documents from the MicroSD Card



Viewing Documents from the Internal Memory



COMPATIBILITY: DOCUMENT

PK120 uses Pictel File Viewer to open and view Microsoft® Word files and Adobe® PDF files.

Supported Versions

Version
Microsoft® Word 95
Microsoft® Word 97
Microsoft® Word 2000
Microsoft® Word 2003
Microsoft® Word 2007
Adobe® PDF 1.0 ~ 1.4

Compatible Document Format

File Format	File Extension
Microsoft® Office Application (Word, Excel, Power Point) HTML Adobe® PDF	.doc
	.docx
	.ppt
	.pptx
	.xls
	.xlsx
	.htm
	.html
	.pdf

Font / Language Support


PK120 has limited font support. When a document with unsupported font is opened, Office Viewer automatically substitutes the unsupported font. This may cause the document layout to look different. If no font substitutions are available, the text are displayed as blanks.


Font / Language	
Dutch	Iberian Portuguese
English	Spanish
French	Swedish (Svenska)
German (Deutsch)	Traditional Chinese
Italian	Simplified Chinese
Japanese	Russia
Korean	Greek
Polish (Polski)	


<Note>
 • Office Viewer supports embedded fonts in Adobe® PDF documents but not in Microsoft® Word documents.
 • Embedded fonts are used in priority


PK120 supports one default font for each language.


HOW TO VIEW DOCUMENTS - VIEW MODE


Zoom in 1x ~ 4x 


Pan up, down, left, right (in zoom mode) 

Page up 

Page down 

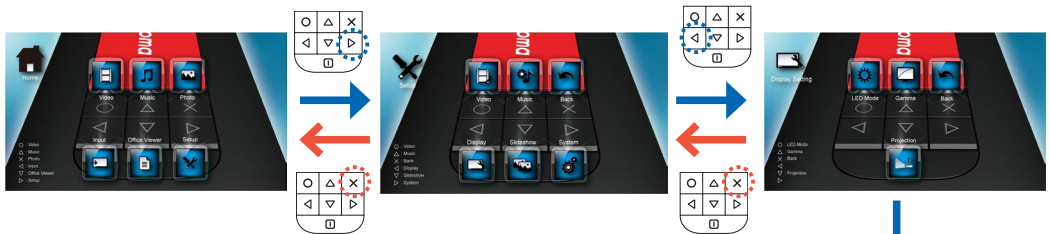
Move left 












Move right 

Return to Home menu 

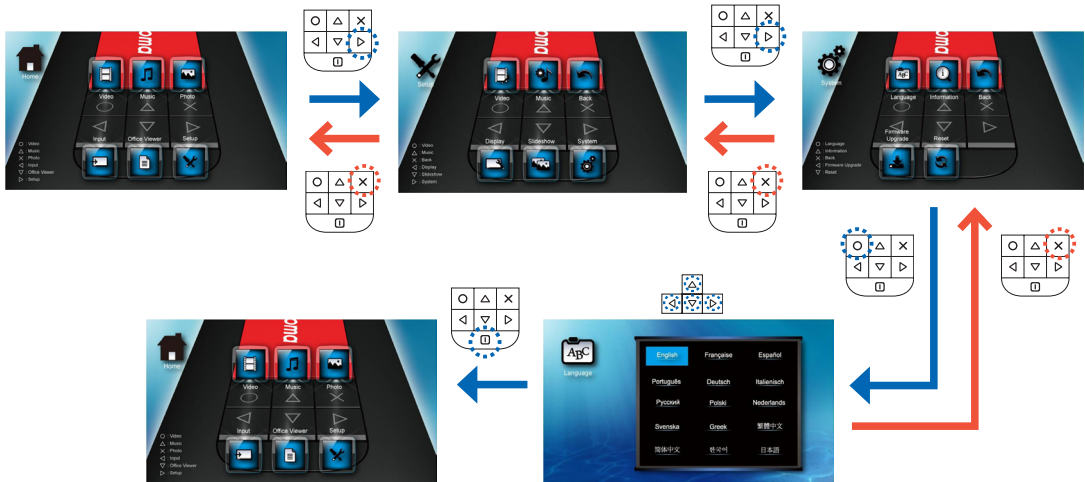


DISPLAY SETTINGS



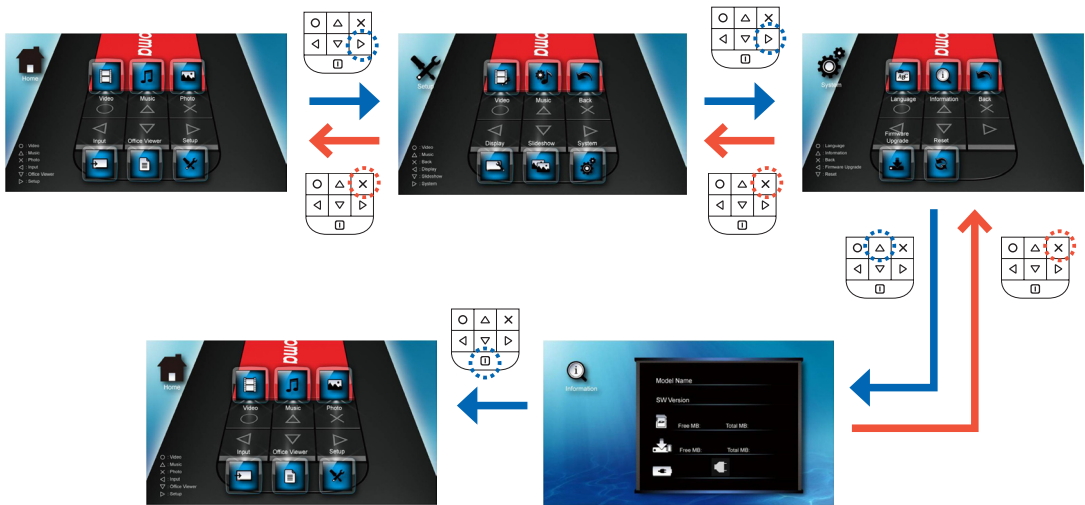
	LED mode: Bright		Gamma: Presentation
	LED mode: Standard		Projection: Front Desktop
	Gamma: Standard		Projection: Front Inverted
	Gamma: Animation		Projection: Rear Desktop
	Gamma: Bright		Projection: Rear Inverted
	Gamma: Movie		

SELECT MENU LANGUAGE



Select your preferred menu language.
 Options are: English, French, Spanish, Portuguese (Brazilian), German, Italian, Russian, Polish, Dutch, Swedish, Greek, Traditional Chinese, Simplified Chinese, Korean, Japanese

VIEW PROJECTOR INFORMATION

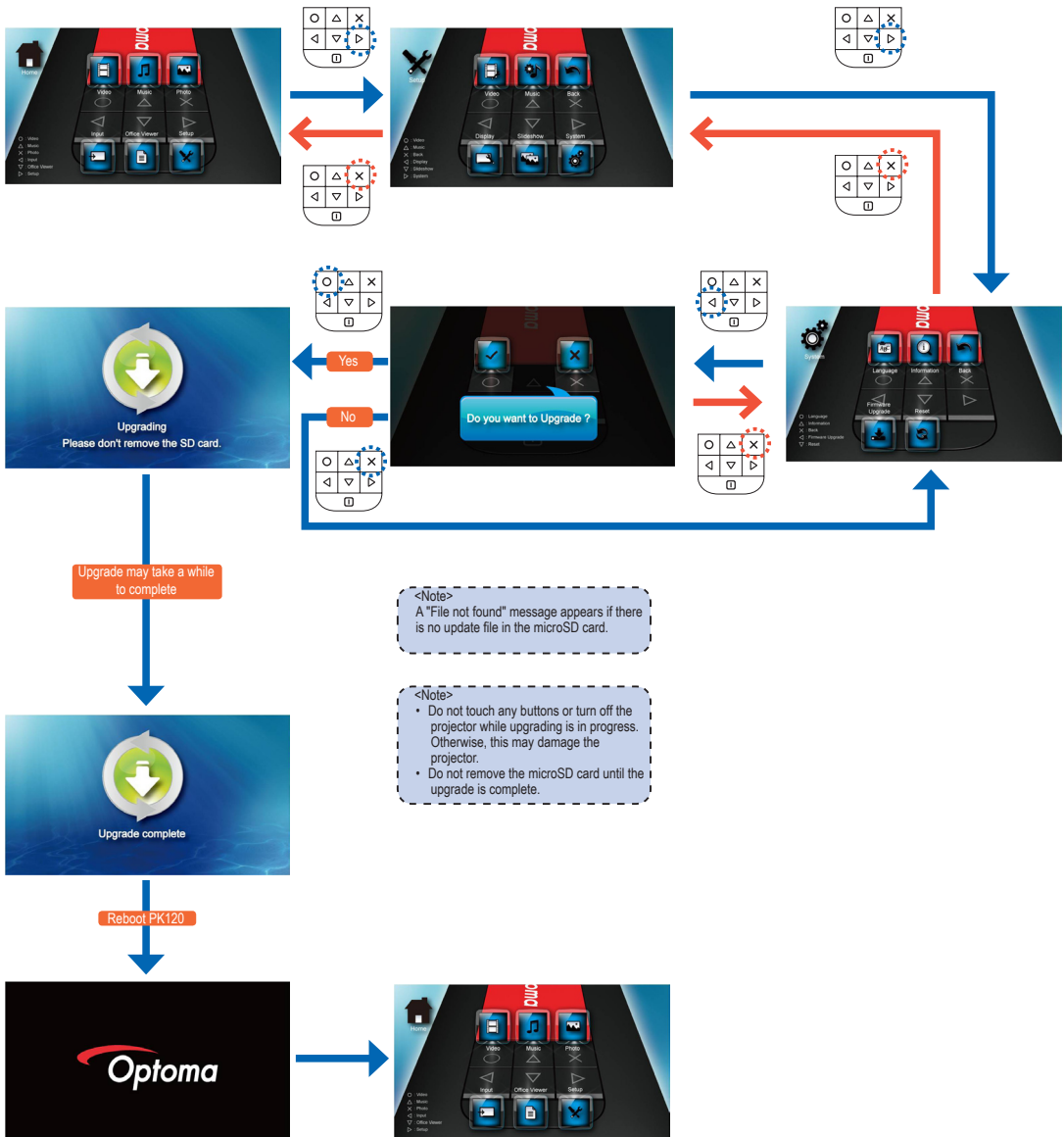


- MicroSD card capacity
- Internal memory capacity
- Battery charging
- Power adapter connected

UPGRADE FIRMWARE

Software updates can be obtained from the OPTOMA website (www.optoma.com).

1. On your computer, create a folder named "upgrade".
2. Download the latest firmware from www.optoma.com and save it in the "upgrade" folder.
2. Copy the "upgrade" folder to the root folder of the microSD card.
3. Insert the microSD card into the microSD card slot of the projector.
4. Follow the steps below.

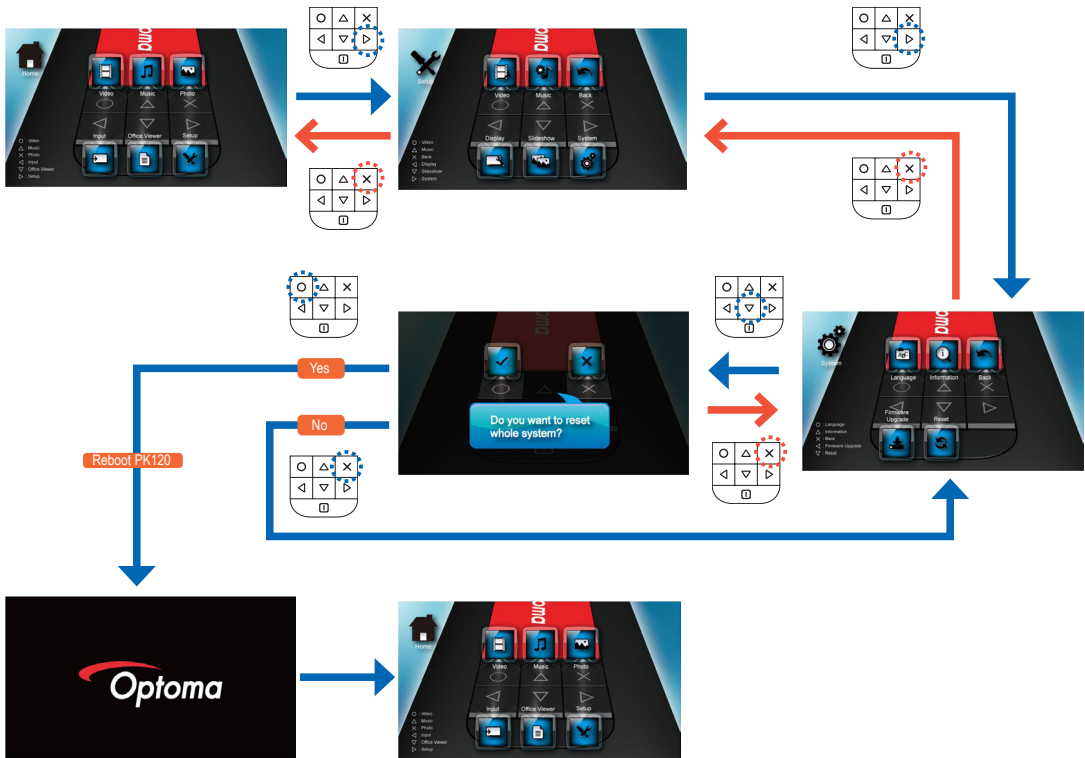


RESET THE SYSTEM

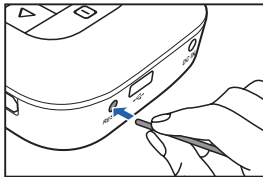
Resetting the System by Reset Menu

<Note>

When the system is reset, all files stored in the internal memory will be deleted. Ensure all files are backed up before resetting.



Resetting the System by Reset Button



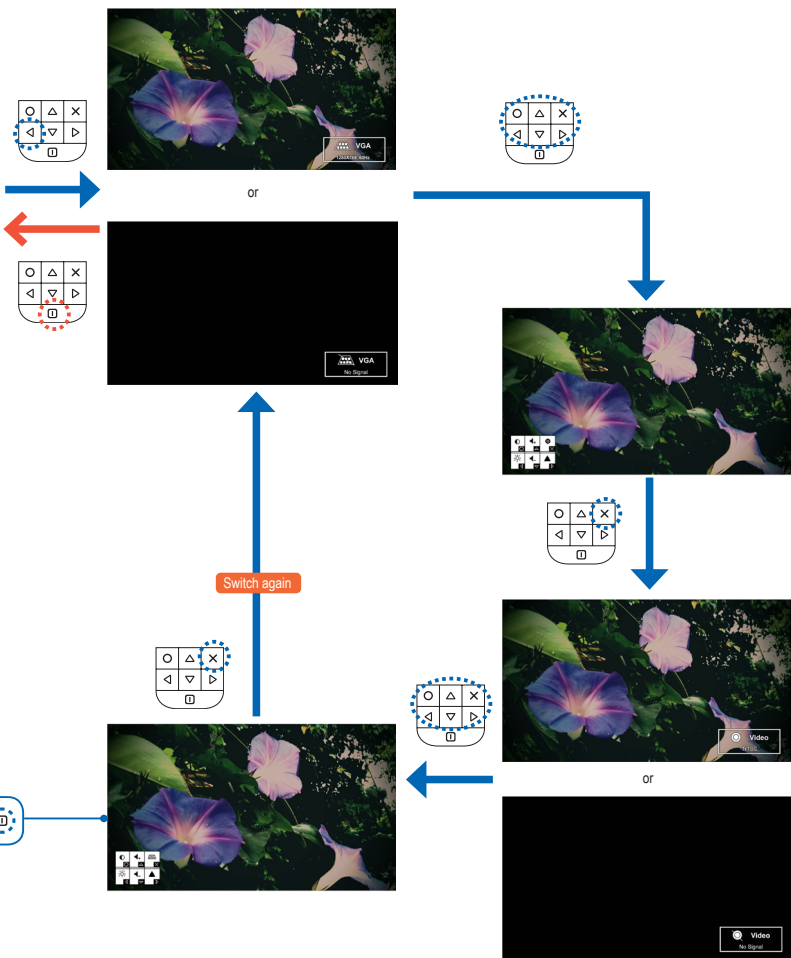
Use the Reset button to perform a hard reset on your projector.

1. Push the Reset button using a pointed object such as a tip of a pen or a paper clip.
2. The projector resets the system and shuts down. Press **[]** for 3 seconds to reboot the projector.

HOW TO USE EXTERNAL INPUT SOURCE: VGA / COMPOSITE AV

Switching Input Source

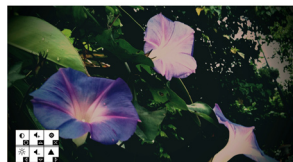
Once a video source device is connected to the projector and turned on, PK120 detects the video source. To manually switch the input source, do the following:



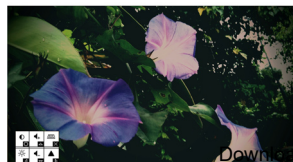
Exit the input source and return to Home menu from any point

Adjusting Input Source Settings

Adjust volume



or



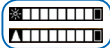
Enter Setting mode

- Contrast setting
- Brightness setting
- Sharpness setting

<Note>
Similar screen appears in Brightness setting and Sharpness setting. However, the button functions may differ, follow the button guide.



- Exit Setting mode
- Sharpness setting
- Brightness setting
- Return to previous screen
- Return to Home menu



Timing Table

Mode	Resolution	V-Sync (Hz)
VGA	640x480	60
	800x600	60
	1024x768	60
	1280x768	60
Video In	480i / 480P	60
	576i / 576P	50
	720P	50 / 60
	1080i	50 / 60

<Note>
Video format does not support content with B-Frame function.

If you experience a problem with your projector, please refer to the following information. If a problem persists, please contact your local retailer or service center.

Image Problems

- 7 No image appears on-screen
 - Ensure the cables/charger/ battery are correctly and securely connected.
 - Ensure the pins of connectors are not crooked or broken.
 - Make sure the projector is switched on.
- 7 Image is out of focus
 - Adjust the Focus Dial.
 - Make sure the projection screen is between the required distance 9.6 to 126.6 inches (0.245 to 3.215 meters) from the projector. See page 5.
- 7 Image is too small or too large
 - Move the projector closer to or further from the screen.
- 7 Image is reversed
 - Select "Setup --> Display --> Projection" from the OSD and set the projection direction.

Audio Problems

- 7 No sound
 - During video or music playback, press the button.

Battery Problems

- 7 Battery capacity is low
 - Remove the battery and clean the connectors.
 - The battery is worn out and needs to be replaced.
 - The battery may not charge correctly after the projector is turned off due to the high temperature emitted by the projector. Let the projector cool for a while before connecting the charger.

LED Indicator

LED Color	Description
No light	In operation
Amber	Battery charging
	Charge complete
Green	Transferring data
Red	Battery low
Red (flashing)	Overheat; The projector temperature exceeds 80°C.

<Note>

- The LED flashes red when the projector temperature reaches 80°C. It is recommended to switch off the projector to allow it to cool down.
- When the projector temperature reaches 85°C, the projector automatically shuts down due to the built-in temperature protection. This is not a malfunction. Let the projector cool down before switching it on again.

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This device is not intended for use in the direct field of view at visual display workplaces.

TECHNICAL SPECIFICATION

PK120 Specifications

Optical Specification (Panel)	
Manufacturer	Texas Instruments
Type	DLP® 0.2 nHD DMD
Size	0.22 inches (diagonal)
Display pixels	640 x 360
Projection image size	10" ~ 60"
Throw ratio	2.2
Horizontal scan rate	31.5 ~ 48.4 KHz
Vertical scan rate	50 / 60 Hz
Aspect ratio	4:3, 16:9, Auto
Parameters	
Internal memory	2GB NAND Flash
External memory	micro SD card (up to 32 GB)
Brightness	Bright mode: 12lm STD mode: 8lm
Luminance	50% (Minimum) 60% (Typical)
Uniformity (JBMA)	
Contrast Ratio	1200:1 (Typical)
Projection Offset	100%

I/O Connectors	
Universal (24-pin) to VGA IN x 1	
Composite Video / Audio (Φ 2.5mm) x 1	
microSD card slot x 1	
Audio output (Φ 3.5mm) x 1	
Micro USB x 1 (for data transfer / charging)	
Input Signal Specification	
Analog RGB signal (PC)	<ul style="list-style-type: none"> Analog RGB 0.7 +/- 0.1 Vp-p, 75 ohm Separate TTL, H, V Sync
Video signal	NTSC / PAL Composite video 1.0 +/- 0.1 Vp-p, 75 ohm
Audio signal (Share with AV input port)	300mVrms, 22K ohm
AV-IN	Audio input: 0 ~ 1 Vrms Video input: 0.5 ~ 1.8 Vp-p
Output Signal Specification	
Micro USB X 1	(Device/Battery charge) Host support < 150mA 5V
Audio out	3.5Φmm jack
Speaker	Built-in stereo speaker 0.5W x 2

Video Compatibility	
NTSC	NTSC M/J 3.58MHz, 4.43MHz
PAL	PAL B/D/G/H/I/M/N, 4.43MHz
SDTV	480i, 576i
RGB	480i / 480P, 576i / 576P
Computer Compatibility	
VESA standards, PC & Macintosh compatible	
Physical Specifications	
Weight	145g (with battery)
Dimensions (L x W x H)	117 x 60 x 21 mm
Charging time	2.5 hours
Operating time	Video: 80 min (high brightness) Music: 4.5 hours
Operating temperature	0° ~ 30°C (32°F ~ 86°F)
Storage temperature	-20° ~ 60°C
Humidity	10 ~ 40% RH (without condensation) 0 ~ 1829 m (0 ~ 6000 feet) above sea level

Power Specifications	
Battery	3.7V, 1800mAh
Power supply	5V, 2A, 110 ~ 240V
Charging time	2.5 hours
Battery operating temperature	Charge: 0° ~ 45°C Discharge: -20° ~ 60°C

Specifications are subject to change without prior notice.



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