picopro

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1. Safety Precautions

This product is not waterproof – avoid using it near water or wet places.
There is a risk of malfunction if product is used in places where sudden or extreme temperature changes occur.
Applying excessive force or impact to this product may result in product damage, and will void warranty.
Never attempt to disassemble or service this product yourself. Doing so can result in electrical shock and void warranty.
This is a Class 3R Laser product. For your safety, do not stare directly into the laser source. Doing so could damage your eyes.

FCC Compliance Information
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 to another device.
2. This device must accept any interference received, including interference that may cause undesired operation.

FCC Class Notice
This equipment has been tested and found to comply within the limits for a Class B digital device, pursuant to Part15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment.
This equipment generates, uses, and radiates 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 with special installation.
If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to correct the interference by one of the following measures:
- Reorient or relocate the receiving antenna.
- Increase separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician.

FCC Caution
Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement:
This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator
and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Industry Canada Statement
This device complies with Industry Canada license- exempt RSS standard(s). Operation is subject to the following two conditions:
1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

CE Caution
Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

IEC-60825-1 Caution
Use of control or adjustments or performances of procedures other than those specified here in may result in hazardous radiation exposure.

2. Certifications

KC : MSIP-CMM-CLK-PICOPRO
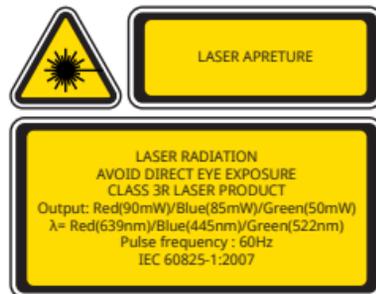
FCC ID : TCLPICOPRO

CE1177

LASER APRETURE

LASER RADIATION
AVOID DIRECT EYE EXPOSURE
CLASS 3R LASER PRODUCT
Output: Red(90mW)/Blue(85mW)/Green(50mW)
λ= Red(639nm)/Blue(445nm)/Green(522nm)
Pulse frequency : 60Hz
IEC 60825-1:2007

IEC-60825-1 : Class 3R Laser

RoHS
compliant

Industry Canada   Industrie Canada

IC No : 10211A-PICOPRO

3. Environmentally Friendly Disposal and Recycling

To protect the environment, dispose this product separately from household waste once it has reached its end of life, or take it to your local electronic waste disposal center.

Built-in Battery

Battery Type	Rechargeable Lithium-ion Polymer Battery
Battery Operating Time	Approx. 120 minutes (with continuous use)
Battery Capacity	3140 mAh @ 3.7V
Charging the Battery	Use supplied USB power adapter to begin charging the battery. Battery status is indicated by four blue LED indicators while charging. (4 LED : 100% / 3 LED : 75% / 2 LED : 50% / 1 LED : 25%)
Battery Charging Time	Approx. 270 minutes

4. Package Contents
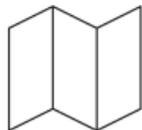
PicoPro	User Manual	Power Adapter	MHL Cable	Holding Mount	Pouch

5. Product Features

PicoPro is a laser-based HD pico projector that always stay focused and easily fits in your pocket.
It enables you to share contents from your mobile device onto any surface via HDMI connection or Miracast (Screen Mirroring) capability.
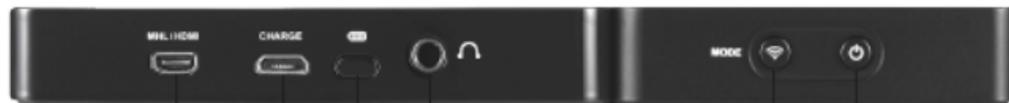
6. Identifying Parts

Touch-sensitive Volume Down

Touch-sensitive Volume Up

Backlit Battery Indicator Light

Speaker

Reset Button

Laser radiates from this aperture

MHL | HDMI   CHARGE

3.5mm Audio Out

Battery Status Indicator

CHARGE – Micro USB port for charging

MHL/HDMI cable input

MODE   Power Button

Mode Switch Button

FCC ID : TCLPICOPRO   CE1177   KC : MSIP-CMM-CLK-PICOPRO
IC : 10211A-PICOPRO
Model : PicoPro   DC : 5V 2A   Celluon, Inc.   Made in Korea

7. Connecting PicoPro

a. Compatible Operating Systems

For HDMI Connection	For Wireless Connection	
	Miracast	DLNA
Any digital device that supports HDMI capability	Android OS 4.2 or later Windows OS 8.1 or higher Any OS that supports Screen Mirroring functionality	Any digital device that supports DLNA protocol * Using DLNA connection requires downloading DLNA streaming app from the App Store or Play Store.

b. Wired Connection
**For proper operation of PicoPro, please do not insert HDMI cable during Miracast connection.

Using HDMI Connection :
Use plug-n-play connection for any digital/mobile device via HDMI connection.

1. Turn on PicoPro by pressing the power button for about 2-3 seconds.

2. Celluon logo will display upon powering on, followed by a "Preparing wireless connection... To go to HDMI mode, press Mode Switch button" screen.

3. Press and hold "Mode Switch" button located next to power button for 2~3 seconds to change to HDMI mode.

Please connect using HDMI cable or
Press Mode Switch button to change to wireless mode.

4. PicoPro is now in HDMI mode.

5. Locate MHL/HDMI port on the PicoPro and use supplied HDMI cable to connect to a device.

6. PicoPro will start mirroring contents from connected device.

* For Apple devices, please use additional Apple Digital AV Adapter to connect via HDMI cable.
* For Samsung devices, please use supplied Samsung adapter (5pin to 11pin converter) to connect to MHL/HDMI cable.
*During the use of PicoPro via supplied MHL cable, connected mobile device may charge from PicoPro's internal battery.
 It is recommended to supply power via USB port on supplied MHL cable to maintain PicoPro's operating time.

c. Wireless Connection

Using Miracast :
The Miracast capability is called different names on difference devices. (i.e. Samsung/Sony = Screen Mirroring, HTC = Media Output)
Please find this in device settings.

1. Turn on PicoPro by pressing the power button for about 2-3 seconds.
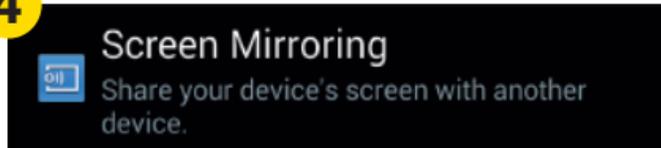

2. Celluon logo will display upon powering on, followed by a "Preparing wireless connection... To go to HDMI mode, press Mode Switch button" screen.

3. After about 20-30 seconds, "Ready to Connect" screen for Miracast will display.

Screen Mirroring
Share your device's screen with another device.

4. On a desired mobile device, find and select Screen Mirroring / Media Output.

5. Mobile device will search for nearby devices to connect.

Screen Mirroring
Available devices ○ Scanning...

🖥 Celluon:0471-PicoPro
Tap to connect.

Cancel   Stop
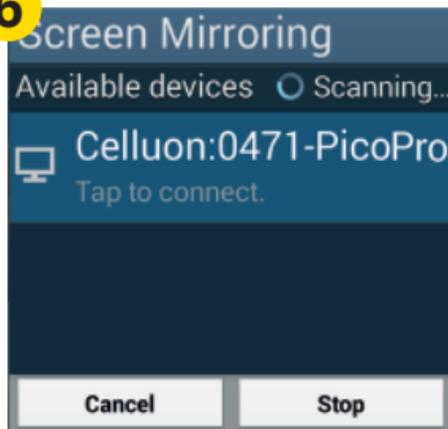
6. When device discovers "Celluon PicoPro", tap to connect.

Screen Mirroring

Connecting...

Cancel
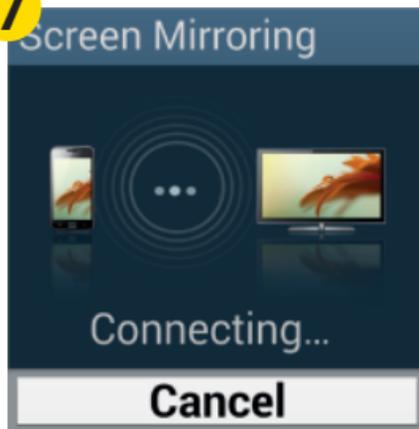
7. Mobile device will say "Connected" and PicoPro will start mirroring display.

* It is recommended to disconnect any previously connected WiFi network before attempting to connect via Miracast (screen mirroring).

Using DLNA :
* To connect to a device using DLNA capability, you must install a DLNA streaming app on your mobile device. Applicable apps can be downloaded from App Store/ Play Store.

1. Turn on PicoPro by pressing the power button for about 2-3 seconds.

2. Celluon logo will display upon powering on, followed by a "Preparing wireless connection... To go to HDMI mode, press Mode Switch button" screen.

3. After about 20-30 seconds, "Ready to Connect" screen for Miracast will display. (Default wireless connection mode is Miracast)
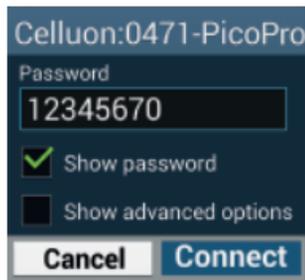
4. Lightly press "Mode Switch" button again to change to DLNA mode.

DLNA

Ready to Connect
Adapter Name: Celluon XXX- PicoPro
IP Address   : 192.168.8.1
Password   : 12345670

5. DLNA "Ready to Connect" screen will display upon completion of mode switch.

6. On a desired mobile device, go to WiFi setting, and connect to "Celluon PicoPro". Use password "12345670" to connect.

8. When WiFi is successfully connected, open the installed DLNA streaming application on the mobile device.
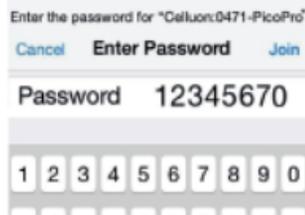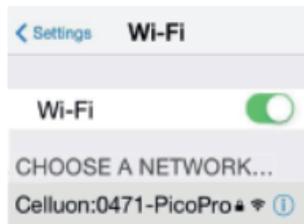
9. Select desired content to display.

10. Select display location: Celluon PicoPro.

11. Mobile device will say "Connected" and PicoPro will start display selected media contents.

*** For DLNA connection with iOS devices:

1. Follow above steps 1-11.

d. Switching Connection Mode
PicoPro allows you to easily switch from wired connection mode to wireless mode, and vice versa.

From HDMI mode to Miracast mode

1. From HDMI mode, press and hold "Mode Switch" button for about 2 seconds.
2. Celluon logo will display.
3. After the logo, "Preparing wireless connection... To go to HDMI mode, press Mode Switch button" screen will display.
4. After about 20-30 seconds, "Ready to Connect" screen will display for Miracast connection, indicating that the mode is successfully switched.

From Miracast mode to HDMI mode

1. From HDMI mode, press and hold "Mode Switch" button for about 2 seconds.
2. Celluon logo will display briefly, and "Please connect using HDMI cable or Press Mode Switch button to change to wireless mode" screen will display.
3. Use HDMI cable to connect device.

From Miracast mode to DLNA / DLNA mode to Miracast mode

1. From Miracast mode, lightly press "Mode Switch" button.
2. "Ready to Connect" screen for DLNA mode will display.

** Booting up time may take up to 3 seconds.

e. Reset Switch
Please use this switch to manually power off the product.
Lightly press the button with a sharp pin. (Please do not press and hold the switch for more than 3 seconds)

8. Making Adjustments

Volume Adjustment
*Volume is controlled directly from PicoPro.
Locate touch volume control area on top of device. Adjust the volume by lightly touching the + or – pattern.

Speaker / Earphone Usage
Please connect a speaker or an earphone to the 3.5mm audio out jack.

Laser Alignment
When the images seem blurry and/or the colors appear skewed, please visit Celluon website at www.celluon.com for Laser Alignment instructions.

APC (Auto Power Control) Setting
This setting is to efficiently control the amount of light emitting from PicoPro's laser diodes.
Due to this setting, users may see a thin white line on the bottom of screen.

Engine High Temperature Protection Mode
During the use of PicoPro, if the surrounding environmental temperature becomes higher, PicoPro's engine enters "High Temperature Protection Mode".
When the temperature of the engine reaches 131°F, a thermometer symbol will appear on the screen as a warning sign.
When the temperature of the engine reaches 140°F, the engine will power off automatically to prevent damages from the heat.
For the safety of the product, it is recommended to use PicoPro in the areas with specified operating temperature, and use the product again after cooling.

9. Charging the PicoPro

Charging Time	Operating Time	
	Wired Connection (HDMI/MHL)	Wireless Connection (Miracast / DLNA)
4-5 hours	3+ hrs	2+ hrs

Battery Status

LED Indicator	Status	Description
	0% charged	Volume control + & - sensors will blink to indicate low battery status
•	25% charged	First LED indicator remains solid. When charging at this stage, the second LED indicator will blink to indicate it is being charged.
• •	50% charged	First two LED indicators remain solid. When charging at this stage, the third LED indicator will blink to indicate it is being charged.
• • •	75% charged	First three LED indicators remain solid. When charging at this stage, the fourth LED indicator will blink to indicate it is being charged.
• • • •	100% charged	All four LED indicators will remain solid.

1. Locate micro USB port next to the battery status button.
2. Use the supplied power adapter to charge the PicoPro through the micro USB port.

- Please fully charge PicoPro's internal battery before first use (approximately 3 to 5 hours).
- A low battery warning icon will show on the screen when the battery is low.
- Use the included power adapter to charge your PicoPro. If the battery is too low, PicoPro will automatically turn off.
- Please use included power adapter or any adapter supports 5V 2A to charge PicoPro.
** Please note that using other adapters than the one provided may result in longer charging times.

10. Troubleshooting

No signal when a device is connected via HDMI cable	Please make sure the cables are inserted into the correct port. Please note that different devices require different gender/adapter to convert to micro HDMI compatible.
Mobile device cannot find Celluon PicoPro during Miracast connection search	Please make sure PicoPro is on Miracast mode. This may also be due to particularly heavy wireless traffic. If this is the case, please reset the device by pressing the reset button on the back of device.
Cannot stream contents through DLNA application	Please make sure device's WiFi is properly connected to PicoPro's WiFi. For DLNA connection, please make sure to connect using the password "12345670"
It takes a long time to display contents through DLNA mode	It depends on each DLNA streaming app to project contents through PicoPro. For large media files, it may take some time to load and convert the video to the correct format.
PicoPro is connected, but only the black screen is projected from the device	Please check if the connected mobile device is on sleep mode. If the screen of the connected device goes black, the projected screen will go black as well. Note that if the volume control LED patterns are on, the PicoPro is powered on
There is no sound	Please make sure the volume level of the PicoPro and/or connected device is not in the mute status.
The video stops playing periodically	Please make sure connected device has enough battery to play the video. If both devices have enough battery, this may be due to unstable WiFi connection. Please disconnect and reconnect the device.
Device automatically shuts down during use	This may be due to the depletion of battery or high temperature of the product. If the product is left in a place where the envirnomental temperature is high (such as in a blanket or near heater), the power will turn off automatically in protection of fire hazard. Please cool the product before using again. If the prdouct has shut down due to battery depletion, please charge the device before turning it back on.
PicoPro's screen is frozen; it stopped playing the video / no response from buttons when pressed / cannot convert modes	Please reset the device by pressing the reset button on the back of device. (Refer to "Identifying Parts" section for the location of reset button.)
Product makes abnormal noises	Please contact Celluon Customer Service for further assistance
The projected image is unclear	This is due to the shifts in laser diode. Please refer to Laser Alignment instruction page to adjust shifted lasers.
Connection through Miracast intermittently disconnects during use	This is due to the noise occurred by double wireless connection. Try to connect again after disconnecting all the previously connected wireless networks.
Can users update PicoPro's firmware	Please visit Celluon website www.celluon.com for instructions to update PicoPro's firmware.
The occasional discrepancy between audio and visual display	When users stream media content from an online source while using PicoPro, audio discrepancy with video output may occur depending on wireless environment. The cause may be from the wireless connection between your mobile device and WiFi network or between your mobile device and PicoPro. A slight delay in mirroring (Miracast) from your mobile device to PicoPro may also occur.
PicoPro turns off while charging	Please make sure PicoPro is being charged with the dedicated adapter. Other adapters may not meet the optimal power supply required for PicoPro. Therefore, using other adapters than the one provided may lead to the PicoPro turning off until sufficient battery power is stored.

11. Specifications

Item		Spec.	Remark
Display Performance	Display Method	Laser	
	Product Lifetime	10,000 hours	
	Brightness	32 ANSI Lumens	The perceived brightness of laser projectors with a given ANSI brightness is 50%+ higher than that of the LED based projectors
	Aspect Ratio	16:9	
	Throw Ratio	1.3	
	Sequential Contrast Ratio	80,000 : 1	
	Resolution	1920 x 720p	HD resolution
	Color Depth	16.7 M Colors (RGB 24bit)	
	Focus	Focus Free (always in focus)	No focus wheel required
	Max. Image (Screen) Size	250 inches	In optimal lighting conditions
Measurement	Size	150 x 73 x 13.4 mm (6 x 3 x 0.5 inches)	
	Weight	181g (0.4lbs)	
Electrical Characteristics	Battery Capacity	3140mAh @ 3.7V	
	Battery Operation Time	Wireless Connection: 2+ hrs Wired Connection: up to 3+ hrs	The operating time may slightly vary depending on the environment of use
	Speaker	1.0W	
	Audio Interface	3.5mm ear phone jack	
	WiFi	Dual (2.4, 5G)	
Laser Safety	Classification	IEC Class 3R	Consumer safe device
	Laser Spec — Output	Red 90mW / Blue 85mW / Green 50mW	
	Laser Spec — Wavelength	Red 639nm / Blue 445nm / Green 522nm	
	Laser Spec — Divergence Angle	42.1 deg	
	Laser Spec — Pulse Frequency	60Hz	

Item		Spec.	Remark
Environmental Condition	Operating Temperature	0°C - 35°C	
Compatibility	Wired Connection		
	Android/Windows OS	Micro HDMI/MHL cable	
	iOS	Micro HDMI	Additional Apple Lightning Digital AV Adapter required
	Wireless Connection		
	Android/Windows OS	Miracast	Screen Mirroring
	iOS	DLNA	Download of DLNA streaming application required for DLNA connection
Adapter	MicroUSB Type	5V / Max 2A	Please use the included power adapter or any adapter supports 5V 2A to charge PicoPro. ** Using other adapters than the one provided may result in longer charging times.
MHL Cable	MHL to HDMI with USB		When PicoPro is paired to your mobile device via provided MHL cable, the connected device will charge from PicoPro's internal battery. Please make sure to supply additional power using the USB port on the provided cable.PicoPro's battery will deplete faster if additional power is not supplied.

12. Warranty

- Celluon warrants this product to be free from defects in materials and workmanship under normal use for a period of one (1) year from the date of purchase, as evidenced by the receipt of purchase.

- During the warranty period, Celluon shall repair or replace the product if defective. If replaced, the replacement shall be with a product of equal or greater value.

- This warranty is limited to the purchaser and is not transferable.

Please contact support@celluon.com for warranty supports.