

TLC200 Pro

User Manual

Never miss a shot



SEE the **UNSEEN**
HDR Time Lapse Video camera

TLC200 Pro

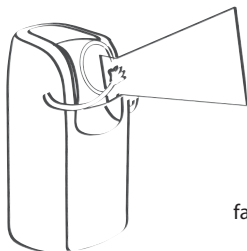
User Manual

brinno
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Optional Accessories



Weather Resistant Housing
(ATH120)



Brinno Reader
(ABR100)



Bike Cam Holder
(ABH100)



Shutter Line
(ATS110)



Camera Wall Mount
(AWM100)



Motion Sensor
(ATM110)



Pan Lapse
(ART100)



Pouch
(ATP100)



Micro Scope
Adapter(AMH100)



Brinno Lens
(BCS 18-55 & BCS 24-70)

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T.Lapse 
ASAP
 OK
 2013/03/01
 22:58:32

MENU TIME

Setting 
 < OK >

Settings

SD Storage
 Size=4GB
 Used=27%
 Free=73%
 < OK >

SD Storage

Focus
 [⊕]
 < OK >

Focus

TIME 
ASAP
 < OK >

Set the Time Interval

ASAP	30 Sec
1 Sec	1 Min
2 Sec	5 Min
3 Sec	10 Min
5 Sec	1 Hr
10 Sec	Custom
20 Sec	

Time Lapse Frame Rate

1 FPS/ 5 FPS/ 10 FPS/ 15 FPS/ 20 FPS/ 30 FPS

White Balance Mode

Auto/5000 Day/ 7000 Shad/ 6000 Clou
 4000 FI-C/ 3300 FL-W/ 2800 Inc

Image Quality

Best/Better/Good

Scene

Daylight/Twilight/Night/Moon/Star

Timer

You can set start and stop time.

HDR Range

High/Medium/Low

Exposure

— · · · · +

Custom Image

Saturation

— · · · · +

Contrast

— · · · · +

Sharpness

— · · · · +

EXIT

MORE....

Time Stamp

off/on

Low Light Recording

off/on

Set Date&Time

LED Indicator

off/on

Band Filter

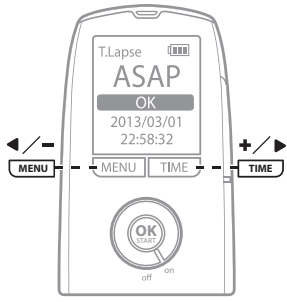
None/50Hz/60Hz

Firmware Version


RESET

EXIT


EXIT




If the screen goes to sleep, press OK to wake up.



MENU TIME



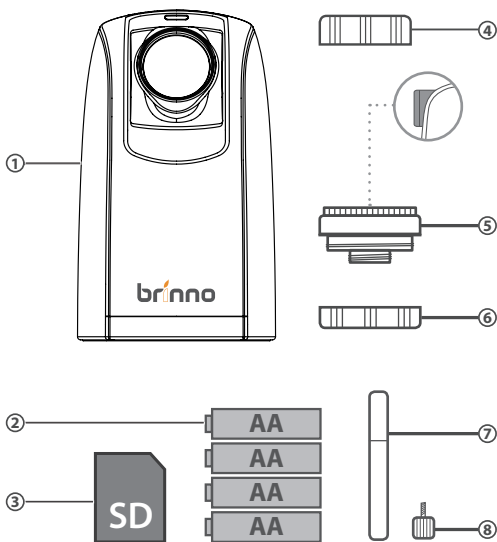


MENU TIME



Subject to change without notice, please refer to brinno.com/support for latest information.

Package Contents



- ① HDR Time Lapse Camera (TLC200 Pro)
- ② 4 AA Batteries
- ③ SD Card
- ④ Lens cover
- ⑤ BCS 019 Lens (comes mounted on the camera)
- ⑥ Lens cover
- ⑦ Screwdriver
- ⑧ Screw

Before You Begin Taking Photos

Parts of the Camera



❶ BCS 019 Lens (Page 32)

❷ SD Card Slot

❸ Connector for Accessories (Page. 33)

❹ Connector for Micro USB cable (Page. 34~36)

❺ Battery Door

❻ Strap Eyelet

❼ LED indicator

❽ LCD Screen

❾ MENU (←) Button

❿ TIME (→) Button

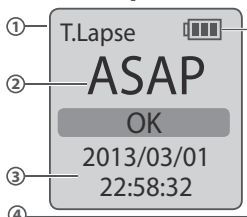
⓫ OK/ START Button

⓬ Power Switch

⓭ Tripod Screw Hole

Display Icons

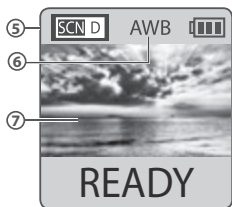
Set Up screen



At Set Up screen

- 1 Capture mode
T.Lapse: Time Lapse mode
Shutter: Stop Motion mode
Motion: Motion Activated mode
- 2 Time interval
Select a pre-set time interval or customize yourself.

Preview screen



- 3 System date and time
- 4 Battery level

Icon	Description
 (green)	Battery fully charged.
 (green)	Battery partially charged.
 (yellow)	Low battery. Replace as soon as possible.
 (red)	Out of battery. Replace battery immediately.



At Preview screen

- 5 Scene mode
- 6 White Balance mode
- 7 Preview image capture window



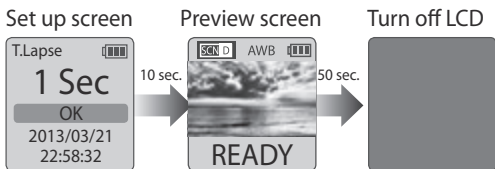
Status icon

- 8 Battery Empty
Please replace battery immediately.
- 9 SD Card Full
Please download files to clear SD card space.



- 10 SD Card Error
Please replace SD card.
- 11 No Card
Please Insert SD card.

How Our Power Saving Technology Works



At The Set Up Screen

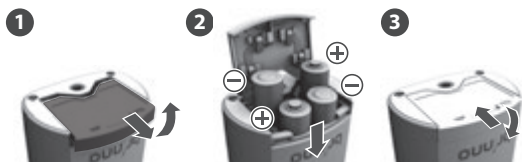
After **10** seconds without activity on the set up screen, the camera will go to Preview screen automatically. You can press the **MENU** or **TIME** button to go back to the set up screen.

At Preview Screen

After **50** seconds without activity on the set up or preview screen, the LCD screen will turn off automatically to save power. You can press the **OK** button to wake up camera.

First Steps

Initial Step-1 Installing the Batteries



1. Open battery door.
2. Insert 4 AA batteries.
3. Close battery door.

! Be sure the battery cover is locked into place.

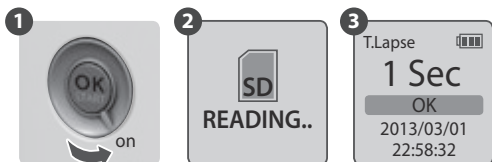
Initial Step-2 Installing SD Card




1. Open SD card cover.
2. Insert SD card until it clicks into place.
3. Close SD card cover.

First Steps

Initial Step-3 Turning on the Camera



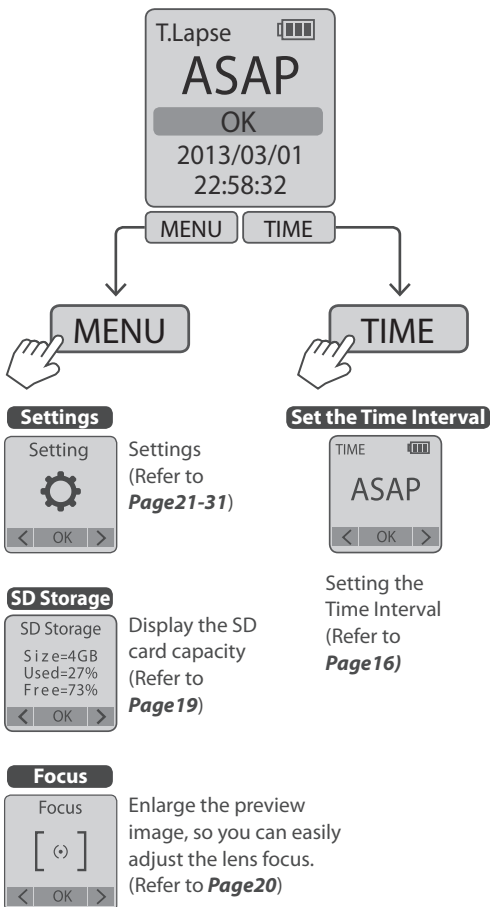
1. Rotate the **Power** switch to the **ON** position.
2. Process screen
 It may display other information on screen, please refer to page 7.
3. Set Up screen

Initial Step-4 Setting the Time and Date



1. Press the **MENU** button to go to Setting -> MORE
2. At MORE Setting, select Set Date & Time, and press **OK**.
3. At the highlight field, press **MENU** (←) to decrease value, press **TIME** (→) to increase value, press **OK** to confirm and go to the next field. When finished press **OK** to exit set up.

Start Screen



Mode

Time Lapse Mode

In Time Lapse Mode, the camera will take one photo at the time interval you selected. When you are finished recording, the camera will convert those photos into a time lapse video!

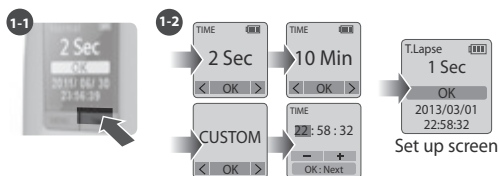
Before you begin recording, you can change the “Time Lapse Frame Rate”. For more information please refer to page 16.

Output file format: AVI. (Without audio)

Resolution: 720P

Time Lapse video length: The maximum size of each single AVI file ranges between 8,192 to 20,480 frames, depending on the time interval setting.

1. Setting a Time Interval:

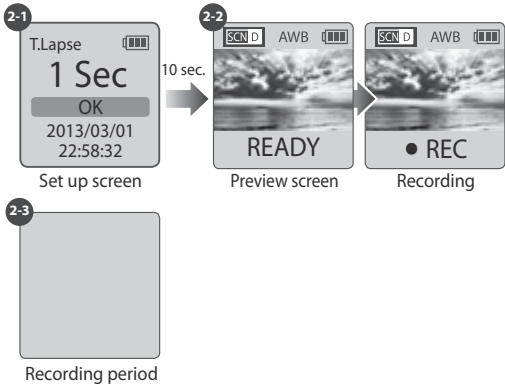


1-1 Press **TIME** button to enter time interval set up.

1-2 Press **MENU** (←) and **TIME** (→) to select a pre-set time interval or customize it by yourself. When complete, press the **OK** Button to confirm and return to the Set up screen.

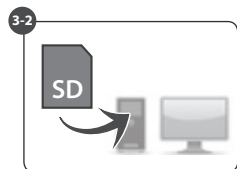
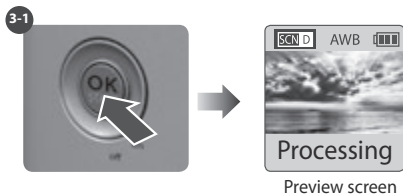
! Time Interval range: from below 1 second to 24 hours.

2. To Begin Recording



- 2-1 After selecting the time interval, press **OK** to proceed to the **Preview Screen**.
- 2-2 On the Preview screen, hold the **OK** button for 2 seconds to start recording. Preview Screen will show REC at the bottom bar.
- 2-3 During the recording period, the LCD panel will turn off to save power.

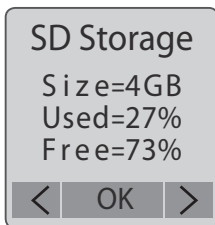
3. To Stop Recording



- 3-1 When recording, hold the **OK** button until the LCD panel turns on and shows the text "**Processing**", this means the camera is processing the AVI and closing the file. When the processing is completed it will display the text "**Ready**". This indicates the recording session is finished.
- 3-2 Remove the SD card from the camera, and insert it into your computer or laptop to enjoy your amazing Time Lapse Videos!

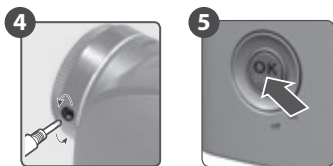
Storage Status

In this mode, the LCD will display the SD card capacity, so you will know how much free space remains on the SD card.



Focus Mode

In this mode, the camera will enlarge the preview image, making it easier to focus the lens.

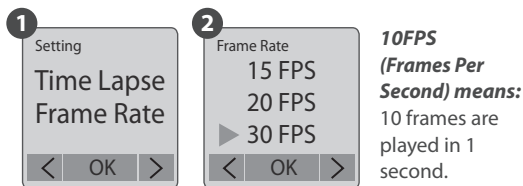


1. Select and enter "Focus" mode.
2. See the enlarged preview image.
3. Use the screwdriver to loosen the screw on the (BCS 019) lens. Adjust the lens focus.
4. Once finished, use the screwdriver to tighten the screw.
5. Press "**OK**" to exit focus mode.

Basic settings

Setting the Time Lapse Playback Frame Rate:

You can change the videos FPS (frames per second) playback with this setting.



1. Press **MENU** button to enter "Setting" mode.
2. Select and enter "**Time Lapse Frame Rate**".
3. What frame rate should I use?

Generally, 10 FPS is suitable for Time Lapse video, but depending on your needs you can use 1 - 30 FPS.

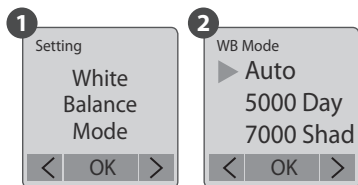
1 FPS: If the video plays at 1 frame per second, the video will not look smooth, and the video length will be longer.

30 FPS: If the video plays at 30 frames per second, the video will look smooth, and the video length will be shorter.








Option	Video playback speed	Shooting subject
1 FPS	Very slow	Slide show
5 FPS	Slow	Stop motion, Face time lapse
10 FPS	Medium	Biking
15 FPS	Medium	Flowers growing, Educational endeavors
20 FPS		
30 FPS	Fast	Parties, Sunrises, Sunsets, Natural settings.

Basic settings

White Balance Mode

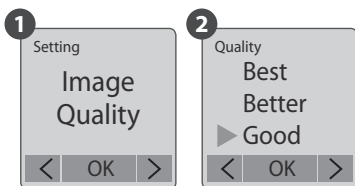


At the default setting of Auto (AWB), the camera automatically adjusts white balance so that a white subject will appear white regardless of the color of the light source. It may however be necessary to match white balance to the light source under mixed lighting or when photographing a subject that is a solid color.

Option		Description	Color Temperature
	Auto	The camera will adjust the white balance automatically	Approx. 4000 to 7000K
	Day	balance automatically	Approx. 5000K
	Shade	Use when shooting in the shade	Approx. 7000K
	Cloudy	Use when shooting on a cloudy day	Approx. 6000K
	Fluorescent Light-Cool	Use when shooting under fluorescent light Cool White	Approx. 4000K
	Fluorescent Light-Warm	Use when shooting under fluorescent light Warm White	Approx. 3300K
	Tungsten Light	Use when shooting under Tungsten light	Approx. 2800K

Basic settings

Image Quality

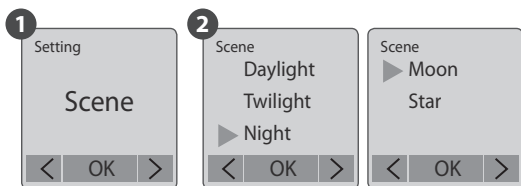


The Image Quality setting lets you choose a different image quality to fit your needs, and the image quality will determine the number of frames that can be stored on the SD Card:






Option	Single frame size	Description	4 GB SD card capability
Best	≈ 200~ 400 Kb	Low compression rate produces maximum image data for highest quality images	≈ 14,000 photos
Better	≈ 150~ 300 Kb	General usage	≈ 20,000 photos
Good	≈ 70~ 150 Kb	High compression rate produce less image data, best for long capture periods	≈ 30,000 photos

Basic settings

Scene



Select the scene that best fits your photographic needs.

Option		Description
	Daylight	For any photography situation in Daytime .
	Twilight	Special setting for Sunrise & Sunset photography. Time Interval ASAP mode: 1 seconds per picture.
	Night	Special setting for Nighttime photography. Low ISO setting, long exposure time. Time Interval ASAP mode: 2 seconds per picture.
	Moon	Special setting for Moon photography. Low ISO setting, extra long exposure time up to 2 sec. Time Interval ASAP mode: 4 seconds per picture.
	Star	Special setting for Star photography. Low ISO setting, super extra long exposure time up to 4 sec. Time Interval ASAP mode: 8 seconds per picture.

Basic settings

Timer



The Timer will allow you to pre-set a recording period. (e.g. 8 am – 5 pm)

1. Set the start recording time (A area), then set the stop recording time (B area). The time is set in **15** minutes increments. Press **MENU** to lower the number, press **TIME** to increase the number and press **OK** to next column. Or you may select **Cancel** to disable Timer setting.

e.g.

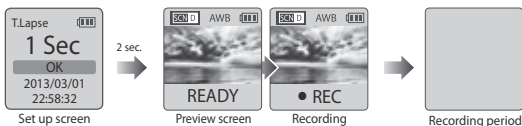
0600 - 1600 morning to afternoon

1600 - 2330 afternoon to night

2345 - 0500 overnight

0000 - 0000
A **B**

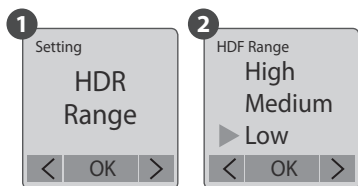
2. After setting up the time, go back to the set up screen then press the **OK** button to move to the preview screen. Hold the **OK** button for 2 seconds to start recording. The LCD panel will show REC then turn off to save power. The camera will automatically activate at the start recording time you selected.



ONCE YOU ACTIVATE TIMER, YOUR TIME LAPSE CAMERA WILL ONLY WORK AT THE TIMER SETTING PERIOD.

Basic settings

HDR Range

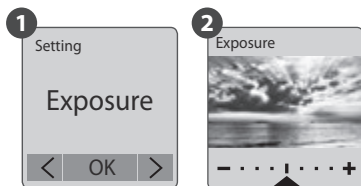


HDR (High Dynamic Range) setting let's you choose the required HDR setting:

Option	Description (For example)
High	Suggested setting for sunrise or sunset.
Medium	For any standard shooting situation.
Low	For portraits.

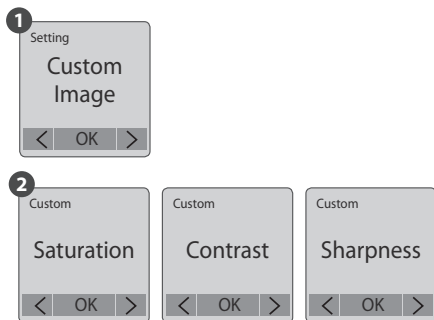
Basic settings

Exposure



In the Exposure setting menu, press **MENU** (→) to increase (+) exposure time or select **TIME** (←) to decrease (-) the exposure time. Press **OK** to exit.

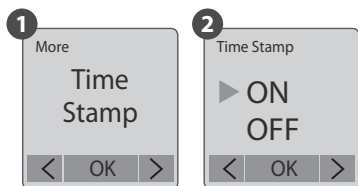
Custom Image



Control Saturation, Contrast, Sharpness. Select and enter each setting, using **MENU** (←) and **TIME** (→) to adjust the effect. Then press **OK** to exit.

More settings

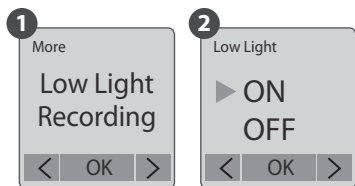
Time Stamp



You can choose if you want the time stamp to show at bottom of your video.

1. Select Time Stamp.
2. Select ON or OFF.

Low Light Recording

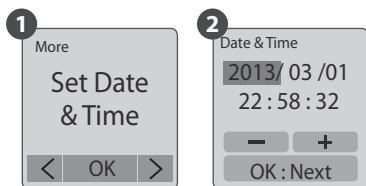


You can choose to set up your camera to record videos in a low light environment or not. (< 5 Lux).

1. Select Low Light Recording.
2. ON: Allows your camera to record video in a low light environment.
OFF: Your camera will go to sleep in a low light environment.

More settings

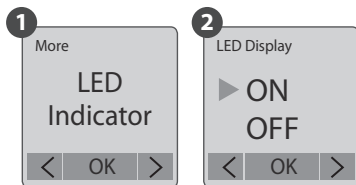
Set Date & Time



Set the correct date and time for your camera.

1. Select Set Date & Time.
2. In the highlight field, press **MENU** (-) to decrease the number, press **TIME** (+) to increase the number, press **OK** to confirm and go to the next field. When finished, press **OK** to exit set up.

LED Indicator

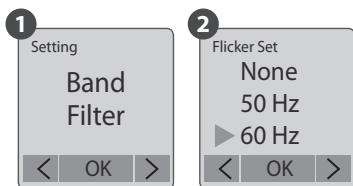


You can choose whether or not the LED indicator will flash while capturing each frame.

1. Select LED Indicator.
2. **ON**: When the camera is capturing a frame, the LED indicator will flash once.
OFF: During capture period the LED indicator will not flash at all.

More settings

Band Filter

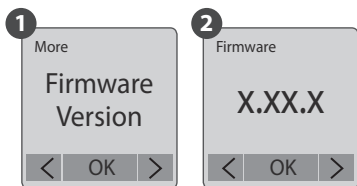


Select the correct fluorescent lighting frequency to match your indoor lighting frequency.

1. Select Band Filter.
2. None: For outdoor environment.
50 Hz: Europe
60 Hz: USA

 We suggest you use **None** when the scene is outdoors.

Firmware Version

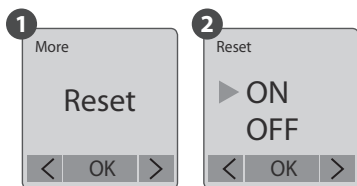


Displays the current version of firmware installed on the camera.

1. Select Firmware Version.
2. Displays the current version of firmware for 30 seconds. Press the **OK** button to exit firmware.

More settings

Reset



You can reset your camera back to the default settings.

1. Select Reset.
2. Select YES and press the **OK** button to reset your camera.

Function	Setting
Capture mode	Time Lapse
Time Interval	2 seconds
Time Lapse Frame Rate	10 FPS
White Balance Mode	Auto
Image Quality	Better
Scene	Daylight
HDR Range	Medium
Time Stamp	ON
Low Light Recording	ON
LED Indicator	ON
Band Filter	None

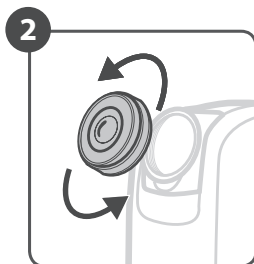
Reference

CS-mount lens

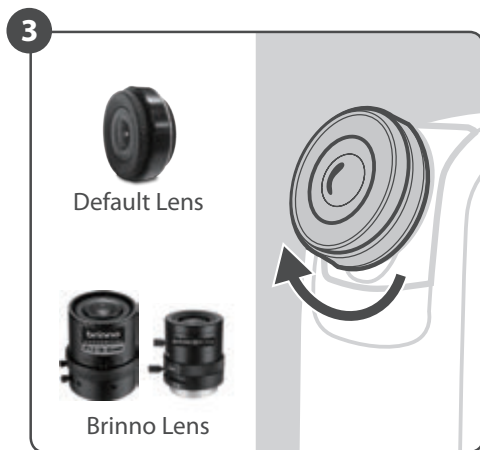
The TLC200 Pro comes with an interchangeable CS-Mount lens, so you can change the CS-Mount lens by yourself to fit your shooting needs.



Turn off Camera



Take off Lens



Replace with other CS Lens

Extensional accessories



This extension connector is used for optional Brinno Time Lapse accessories:

Shutter Line (ATS110): For creating Stop Motion film and Face Time Lapse video

Motion Sensor (ATM110): For motion activated use, turns your time lapse camera into a motion activated camera!



Motion Sensor
(ATM110)



Shutter Line
(ATS110)

Reference

External Power



For long term use, you can attach an external power supply (DC 5V) through the Micro USB connector.



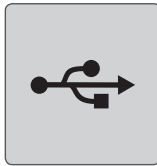
Micro USB connector

A. File transfer



You can connect the TLC200 Pro to your computer in order to transfer the time lapse video from the SD card to the computer.

OS requirement: Windows XP and above.



LCD Display



Reference

Micro USB connector

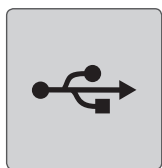
B. Webcam



With the TLC200 Pro connected to your computer you can install free webcam software. The TLC200 Pro can then be used as a webcam for your computer!

Suggested software: please check on Brinno.com

OS requirement: Windows XP and above.



LCD Display



What setting should I use

Subject	Description	Time Interval	Playback Frame Rate
Daily Life	Recording kids, pets all parts of daily life	1~30 seconds	10~30
Party	Recording family parties, public events, and happy time all around	1~10 seconds	10~30
Traveling	Recording your trips, short and long	2 sec~ 1 min	10~30
Plant	Recording Flowers growing, or gardening over a period of time	1~30 min	15~30
Construction	Recording a building being built or any construction project	30 min~ 1 hr	15~30
Biking	Recording a bike ride or trip	1 sec	10~30
Face time lapse	You're the leading character in your time lapse videos	Shutter line	5

Scene Setting

	Daylight	Twilight	Night	Moon	Star
The longest exposure time (Sec.)	1/15	0.5	1	2	4
The shortest time interval (Sec.)	0.2~1	1	2	4	8

What Size SD Card Should I Use

SD card size	Stored photos
4 GB SD Card	30,000
8 GB SD Card	60,000
16 GB SD Card	120,000
32 GB SD Card	240,000

 Based on a selected image quality setting of "Good"

Battery Life

Scene: Day mode

Time interval	Captured frames to battery low	Days
ASAP	168,000	1
1 SEC	200,000	2.3
2 SEC	244,000	5.6
5 SEC	204,000	11.5
10 SEC	145,000	17.0
20 SEC	108,000	25.0
30 SEC	84,500	29.0
1 MIN	51,000	35.0
5 MIN	12,300	42.0
10 MIN	6,300	43.0
1 HR	1070	44.0
4 HR	269	
24 HR	45	45.0

Scene: Twilight mode

Time interval	Captured frames to battery low	Days
ASAP	93,690	1
2 SEC	67,400	1.6
5 SEC	55,500	3.2
10 SEC	51,300	5.9
20 SEC	51,000	11.5
30 SEC	45,000	15.0
1 MIN	33,700	23.0
5 MIN	10,900	38.0
10 MIN	5,900	41.0
1 HR	1,060	44.0
4 HR	269	
24 HR	45	45.0

Battery Life

Scene: Night mode

Time interval	Captured frames to battery low	Days
ASAP	49,420	1.1
5 SEC	39,000	2.3
10 SEC	30,000	3.5
20 SEC	28,100	6.5
30 SEC	26,200	9.0
1 MIN	21,800	15.0
5 MIN	9,300	32.0
10 MIN	5,400	37.0
1 HR	1,040	43.0
4 HR	268	44.0
24 HR	44	

Scene: Moon mode

Time interval	Captured frames to battery low	Days
ASAP	26,000	1.2
7 SEC	18,300	1.5
10 SEC	18,800	2.2
20 SEC	16,000	3.5
30 SEC	15,500	5.0
1 MIN	13,800	9.0
5 MIN	7,400	25.0
10 MIN	4,700	32.0
1 HR	1000	42.0
4 HR	266	44.0
24 HR	44	

Battery Life

Scene: Star mode

Time interval	Captured frames to battery low	Days
ASAP	13,200	1.2
20 SEC	9,900	2.1
30 SEC	8,800	3.0
1 MIN	8,200	5.7
5 MIN	5,400	19.0
10 MIN	3,800	27.0
1 HR	970	40.0
4 HR	262	44.0
24 HR	44	45.0

Specification

CAMERA	
Model	TLC200 Pro
LCD Screen	1.44" TFT LCD
Lens Rotating Angle	120°
Waterproof	Optional, (Use with the TLC200Pro Weather Resistant Housing (ATH120))
CAPTURE MODE	
Time Lapse	Auto generation of Time Lapse video
Stop Motion	Optional, (Use with the Shutter Line (ATS110))
Motion Activated	Optional, (Use with the Motion Sensor (ATM110))
SENSOR	
Type	1/3" HDR sensor
Dynamic Range	115db
Resolution	1.3 Mega pixel
Pixel size	4.2um
Sensitivity	3650mV/lux-sec (Ultra good low light quality)
OPTICS LENS (BCS 019)	
Type	CS Mount (Aspherical Glass Lens)
Aperture	F2.0
Field of View	112°
Focal Length	19 mm (35mm equivalent)
Focus Distance	Manual: 1cm to ∞ (factory setting: 40 cm)
RECORDING	
Time Lapse Video	Format: AVI Resolution: 1280x 720
Still Image	Format: JPEG (only for using Shutter Line) Resolution: 1280x 720
Memory Storage	SD Card (Supported up to 32 GB)
TIME INTERVAL	
Custom	From less than 1 second to 24 hours
POWER	
Power source	Battery: 4 AA Batteries DC IN: 5V (Micro USB connector)
DIMENSION	
Size (DxWxH)	64x 52x 107 mm
Weight	140 g (without batteries)
Color	Black



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