

# Profoto B1 500 AirTTL

## User's Guide EN

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## **Congratulations on your new Profoto product!**

Regardless if you chose a new flash or a new light-shaping tool, know that almost half a century's worth of experience was put into its making.

If the years have taught us one thing, it is to never neglect a single detail. We only put our name on a product in which we have the fullest confidence. Before shipping, every one of our products pass an extensive and strict testing program. Unless it complies with the specified performance, quality and safety, it is a no-go.

As a result, we are confident that your new Profoto product will stay with you for years and help you grow as a photographer.

But getting the product is only the beginning of that journey. Using it for light shaping is the real adventure. That is why we take pride in providing you with such a wide assortment of light-shaping tools, allowing you to shape the light in any way you can imagine.

The almost infinite possibilities might seem bewildering at first, but we're certain you will soon get the hang of it.

Still, I encourage you to sign up for our newsletter at [www.profoto.com/newsletter](http://www.profoto.com/newsletter) or visit our blog at [www.profoto.com/blog](http://www.profoto.com/blog) so that we can share our experience from almost 50 years of light shaping and hopefully inspire you to grow even further.

Enjoy your Profoto product!

Conny Dufgran, founder

# General safety instructions



## SAFETY PRECAUTIONS!

*Do not operate the equipment before studying the instruction manual and the accompanying safety information. Make sure that Profoto Safety Instructions always accompany the equipment! Profoto products are intended for professional use! Generators, lamp heads and accessories are intended for indoor photographic use only. Do not place or use the equipment where it can be exposed to moisture, extreme electromagnetic fields, or in areas with flammable gases or dust! Do not expose the equipment to dripping or splashing. Do not place any objects filled with liquids, such as vases, on or near the equipment. Do not expose the equipment to rapid temperature changes in humid conditions as this could lead to condensation water in the unit. Do not connect this equipment to flash equipment from other brands. Do not use flash heads without supplied protective glass covers or protective grids. Glass covers must be changed if they have become visibly damaged to such an extent that their effectiveness is impaired, for example by cracks or deep scratches. Lamps must be changed if they are damaged or thermally deformed. When placing a lamp into the holder ensure not to touch the bulb with bare hands. Equipment must only be serviced, modified or repaired by authorized and competent service personnel! Warning - The terminals marked with the flash symbol are hazardous when live.*



## WARNING – Electrical Shock – High Voltage!

*Mains powered generators shall always be connected to a mains socket outlet with a protective earthing connection! Only use Profoto extension cables! Do not open or disassemble generators or lamp heads! Equipment operates with high voltage. Generator capacitors are electrically charged for a considerable length of time after being turned off. Do not touch modeling lamps or flash tubes when mounting an umbrella metal shaft in its reflector hole. Disconnect the lamp head cable between the generator and lamp head when changing the modeling lamp or flash tube! The mains plug or appliance coupler is used as disconnect device. The disconnect device shall remain readily operable. Batteries (battery pack or batteries installed) shall not be exposed to excessive heat such as direct sunlight, fire, or the like.*



## Caution – Burn Hazard – Hot Parts!

*Do not touch hot parts with bare fingers! Modeling lamps, flash tubes and certain metal parts emit strong heat when used! Do not point modeling lamps or flash tubes too close to people. All lamps may on rare occasions explode and throw out hot particles! Make sure that the rated voltage for the modeling lamp corresponds with the technical data in the user guide regarding the power supply!*

### NOTICE

## NOTICE – Equipment Overheating Risk

*Remove transport cap from lamp head before use! Do not obstruct ventilation by placing filters, diffusing materials, etc. over inlets and outlets of the equipment ventilation or directly over glass covers, modeling lamps or flash tubes!*

## Note about RF!

*This equipment makes use of the radio spectrum and emits radio frequency energy. Proper care should be taken when the device is integrated in systems. Make sure that all specifications within this document are followed, especially those concerning operating temperature and supply voltage range. Make sure the device is operated according to local regulations. The frequency spectrum this device is using is shared with other users. Interference cannot be ruled out.*



## Final Disposal

*Equipment contains electrical and electronic components that could be harmful to the environment. Equipment may be returned to Profoto distributors free of charge for recycling according to WEEE. Follow local legal requirements for separate disposal of waste, for instance WEEE directive for electrical and electronic equipment on the European market, when product life has ended!*

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## Nomenclature



1. Handle
2. Tilt-lock knob
3. Stand adapter
4. Clamp screw
5. Reflector and Front glass
6. Zoom scale
7. Umbrella holder
8. Battery
9. Battery release button



- 10. USB port
- 11. Sync connector

- 12. IR-Slave eye

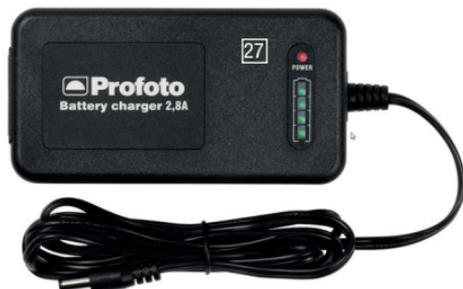


- 13. LCD display
- 14. MODEL button
- 15. TEST button

- 16. ENERGY/SETTINGS dial
- 17. READY button
- 18. SYNC button



- 19. Modeling light setting
- 20. Ready signal setting
- 21. Sync/Air setting
- 22. Battery level indicator
- 23. Light output setting
- 24. Freeze mode indicator
- 25. Temperature limit indicator
- 26. Automatic flash exposure (TTL) indicator



- 27. Battery charger
- 28. Case (Bag XS)



# Operation

## Quick guide

For detailed operating instructions, see subsequent sections.

1. Charge the battery (see page 14).
2. Mount the battery (see page 14).
3. Remove the transport cap from the Reflector/Front glass [5].
4. Fit the Stand adapter [3] to a light stand and secure it with the Clamp screw [4] (see page 14).
5. Adjust the tilt position of the flash by loosening the Tilt-lock knob [2] (see page 14).
6. Switch on the unit by pressing and holding the TEST button [15] (see page 10).
7. Select Freeze/Normal mode by pressing and holding the ENERGY/SETTINGS dial [16] and then shortly pressing the TEST button [15] (see page 11).
8. Set the briefly flash light output with ENERGY/SETTINGS dial [16] (see page 11).
9. Release a test flash by pressing the TEST button [15] (see page 11).
10. Select Sync setting [21] with the SYNC button [18] (see page 12).
11. Select Modeling light setting [19] with the MODEL button [14] (see page 13).
12. Select Ready signal setting [20] with the READY button [17] (see page 13).
13. Mount Light Shaping Tools (see page 15).

## Power on/off

1. To switch on the unit, press and hold down the TEST button [15] until the Display [13] shows the settings information.
2. To switch off the unit, press and hold down the TEST button [15] until the Display [13] is all black.

When the B1 is switched off, the current settings are stored and will apply when the flash is switched back on again.

## Note:

*The B1 automatically turns into sleep after 30 minutes and shuts off completely after 60 minutes of inactivity to save battery life. The auto power off after 60 minutes can be deactivated from any of the optional Air Remote controls by pressing "HEAD" on remote. This will set the B1 into a deep sleep mode that will continue until the battery is drained or until the B1 is reactivated by pressing "HEAD" on remote or by pressing any button on the B1.*

*The option to deactivate auto power off can be very useful if the lights need to be set up prior to a shoot in a place where they later cannot be reached. Note that a fully charged battery will drain in approximately 25-30 hours in deep sleep mode (measured in room temperature).*

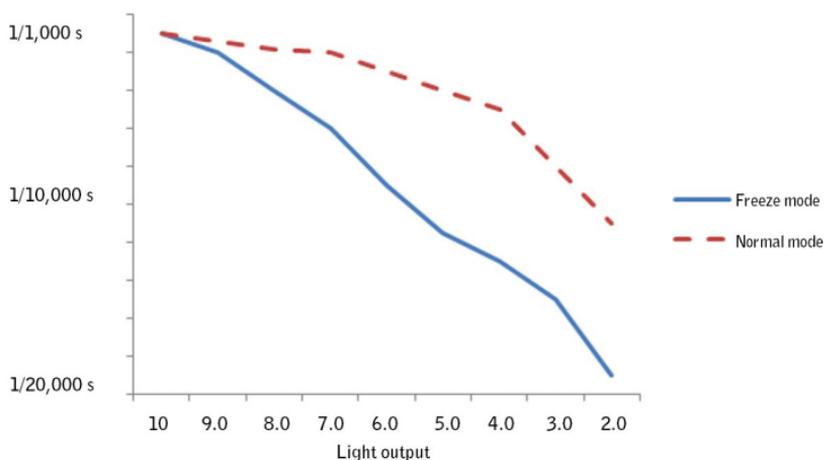
## Select Freeze/Normal mode

The B1 unit can operate in two modes to maximize the versatility in different shooting situations.

- Normal mode: Optimized color temperature stability over the entire energy range. Best option for most types of shots.
- Freeze mode: Optimized for shortest flash duration. Best option for shots where the flash is used to freeze fast action.

Switch between Freeze/Normal mode by pressing and holding the ENERGY/SETTINGS dial [16] and then shortly pressing the TEST button [15]. When Freeze mode is selected, the Freeze mode indicator [24] is shown on the Display [13].

See below overview of flash duration in Freeze vs. Normal mode.



## Set light output (Energy)

The light output of the flash light is shown on the Display [13] in a relative f-stop scale. The maximum energy (500Ws) is shown as 10.

Use the ENERGY/SETTINGS dial [16] to change the energy level of the flash light:

- Turn the ENERGY/SETTINGS dial [16] to change the energy level in 1/10 f-stop increments.
- Press and turn the ENERGY/SETTINGS dial [16] to change the energy level in 1 f-stop increments.

The TEST button [15] is illuminated when the unit is fully charged and ready to flash.

Press the TEST button [15] to release a test flash.

## Select Sync setting

The current sync setting is shown in the Sync/Air setting section [21] on the Display [13]:

Wireless sync settings:

- **AIR:** The built-in Profoto Air receiver is activated. The B1 is set to be triggered and/or controlled from any of the optional Profoto Air transceivers offered by Profoto.
- **SLAVE:** The built-in IR-Slave eye [12] is activated. The flash will slave sync if another flash is fired or an IR signal is detected.

Cable sync only:

- **Blank:** When the Sync setting shows blank, the B1 can only be synced with cable.

Activate/deactivate the wireless sync settings by briefly pressing the SYNC button [18]. To toggle between the wireless sync options, press and hold the SYNC button [18].

## Air (and TTL) operation

When 'AIR' is selected in the Sync/Air setting section [21] on the Display [13], the B1 is set to be triggered and/or controlled from any of the optional Profoto Air transceivers offered by Profoto. The B1 supports all available Air accessories offered by Profoto including those listed in the table below.

1. Activate Air by following the instructions to Select Sync Setting.
2. When Air is activated, press and hold down the SYNC button [18] until the channel and group setting in the Sync/Air setting section [21] is blinking and then release the button.
3. Press and turn the ENERGY/SETTINGS dial [16] to change the channel.
4. Turn the ENERGY/SETTINGS dial [16] to change the group.

### Note:

*There are eight different channels (1-8) that can be set, and each channel has 6 groups (A-F). All lights set to the same channel will be synced together. Groups are used to remotely control individual lights or groups of lights on the same channel when a set-up is made with more than one light.*

Air Accessories compatible with B1 (For detailed operation instructions refer to user guide of respective accessory).

Optional Profoto Air accessories	Usable features in combination with B1 500 Air TTL			
	Flash sync	Remote control	TTL (Automatic flash setting)	HSS (High Speed Sync)
Air Remove TTL*	X	X	X	X
Air Remote*	X	X		
Air Sync*	X			
Air USB**		X		

\*Optional Camera mounted transmitters. Check Profoto.com for TTL supported cameras.

\*\* Dongle for using Profoto Air Studio Software

## Slave Sync operation

When 'Slave' is shown in the Sync/Air setting section [21] on the Display [13], the B1 unit senses the flash release, as well as IR signals from most IR sync transmitters.

1. If the Sync/Air setting section [21] is blank, press the SYNC button [18] once to activate wireless sync. 'AIR' or 'Slave' is now displayed.
2. Ensure that 'Slave' is displayed. If not, press and hold the SYNC button [18] until 'Slave' is displayed.

## Cable Sync operation

Sync via cable is possible in all sync modes. Connect a sync cable from the camera or flash meter to the Sync Connector [11] on the B1 unit.

## Modeling light settings

The current setting is shown in the Modeling light setting section [19] on the Display [13].

1. Press the MODEL button [14] to turn the modeling light on or off.
2. With the modeling light on, press and hold down the MODEL button [14] to toggle between 'PROP' and 'FREE':
  - PROP: The modeling light intensity is automatically adjusted to be proportional to the selected energy level of the flash light.
  - FREE: The modeling light intensity is manually set, independent from the energy level of the flash light.
3. If 'FREE' is selected: With the modeling light on, press and hold down the MODEL button [14] until the percentage value is blinking. Turn the ENERGY/SETTINGS dial [16] to change the percentage value. After a few seconds, the display will stop blinking and the new value will be set.

### Note!

*When dimmed the LED modeling light is pulsing and this may trigger some lightmeters. The recommendation is to use the modeling light in full power or shut it off when a lightmeter is used.*

## Ready signal settings

The current setting is shown in the Ready signal setting section [20] on the Display [13]:

- BEEP: The unit beeps when it is ready to flash again after recharging.
- DIM: The modeling light is turned off after flashing, and is turned on when it is ready to flash again.
- DIM BEEP: The modeling light is turned off after flashing. The unit beeps and the modeling light is turned on when it is ready to flash again.
- Blank: No ready signal.

Use the READY button [17] to select the Ready signal setting:

- Press the READY button [17] to turn 'BEEP' on or off.
- Press and hold down the READY button [17] to turn 'DIM' on or off.

### **Wrong exposure alarm**

When a flash is released before the unit is ready, there will be a long beep and the display will blink. These signals indicate that the flash light does not fully correspond to the set value. The B1 will always continue to flash even if the set light output cannot be met as the image may still be usable if the catch of the moment was perfect.

The sound alarm is partially deactivated when BEEP is deactivated. If BEEP is deactivated the sound alarm will only go off if B1 is used in TTL operation and cannot keep up with the camera in sequence shooting.

### **Quick burst**

Quick burst is an automatically activated function that allows a series (burst) of flashes to be fired at a faster pace than the B1 can recharge, without losing light output. The function is only active when the light output is set to less than full. The length of the burst, in number of flashes, depends on the repetition rate and the set light output. The lower the light output is set, the longer bursts can be triggered. Thanks to this feature, the B1 can trigger up to 20 flashes per second on lower power output without triggering the "Wrong exposure alarm". Note that the accuracy of the light output is slightly less precise when Quick burst is active.

# Handling

## Battery mounting

1. To mount the battery, fit the battery pack into the B1 unit and push firmly until the battery pack locks in place. Make sure there is a “click” sound, indicating that the battery pack is properly secured.
2. To dismount the battery, first switch off the B1 unit. Press the Battery release button [9] and pull out the battery pack.

### Note!

*To prevent damage to battery and/or the B1 housing it is recommended to always remove the battery during transport. Transport damages are not covered by Profoto warranty.*

## Battery charging and maintenance

For optimal performance, the battery should be fully charged prior to usage. The battery can be charged from any charge level. Only use the Profoto Battery Charger 2.8A, Profoto Battery Charger 4.5A, or Profoto Car Charger 1.8A.

If the battery is to be stored for a longer period it should be charged half-full before storing. Never store an empty battery for a longer period as it may go into a deep discharge state that can damage the cells. Always use Profoto Battery Chargers 2.8A or 4.5A to charge an empty battery that hasn't been used for a longer period. The Car Charger 1.8A should not be used in this case.

1. Dismount the battery.
2. Connect the battery charger to the battery pack.
3. Check that the battery charger indicates that charging is in progress.
4. When the battery charger indicates that the charging is completed, it is recommended to disconnect the battery charger and remove the battery from the charger.

## Stand mounting

1. Fit the Stand adapter [3] to a light stand and secure it with the Clamp screw [4].
2. The B1 unit can be directed upwards/downwards when the Tilt-lock knob [2] is loosened. Fasten the Tilt-lock knob [2] when the unit is correctly directed.

## Mounting Profoto Light Shaping Tools

The B1's built-in reflector creates a wide and even light spread with a high output. In addition, the B1 is compatible with more than 120 light shaping tools, which can be used to shape its already beautiful light into almost any light you can imagine.

### All tools with standard reflector mount (rubber collar with clasp)

Most reflectors are equipped with Profoto's unique clamp mechanism, which makes them easy to mount and allows you to shape the light by simply sliding the reflector back and forth along the zoom scale [6].

1. Unlock the clasp on the reflector.
2. Slide the reflector onto the B1. Use the zoom scale [6] to place the reflector in the desired position.
3. Secure by locking the clasp on the reflector.

### **Umbrella mounting**

Umbrellas are simply mounted by sliding the umbrella shaft into the Umbrella holder [7]. The diameter of the umbrella shaft must be between 7 mm and 8 mm in order to fit. When an umbrella is used, it is not possible to mount an external reflector at the same time.

1. Slide the umbrella shaft into the Umbrella holder [7].
2. After a few centimeters, there will be more friction, then continue to slide the umbrella shaft a few more centimeters into the Umbrella holder [7].

### **Replacing the Front glass**

The Front glass [5] can be replaced with optional front glass or glass domes. Domes can be used to enhance the “zoom effect” if using any of Profoto’s “zoomable” reflectors.

1. Switch off the B1 and remove the battery.
2. Wait five minutes to allow the unit to be fully discharged and cooled down.
3. Gently remove the Front glass [5] by pushing the springs holding the glass gently to the sides.
4. Carefully fit the front glass/glass dome in place. Make sure that all springs holding the glass are back in position and securely holding the front glass/glass dome.

### **Changing flash tube and Model Light LED**

For replacement of the modeling light LED or Model Light LED, contact your local dealer or distributor for professional service.

## Other

### TTL

Profoto B1 supports TTL when used with any of the optional Air Remote TTL (currently available for Canon and Nikon). With a TTL remote mounted in the camera hotshoe, you may select to let the camera control the flash output fully automatically without manual metering. Note that TTL is selected on the remote, not on the flash.

If the camera requires a flash output outside the range of the B1, the B1 will blink the energy setting on the LCD Display [13] and produce a long beep to indicate this (it will only beep if the ready signal is turned on).

The automatic flash exposure indicator [26] 'AUTO' is lit every time the flash output is set automatically by the camera. The indicator is lit for ten seconds after receiving a TTL flash command from the remote.

Find more info on the optional TTL remotes and a list of compatible cameras on Profoto.com.

### HSS

Profoto B1 supports HSS (High speed sync) if used with any of the optional Air Remote TTL transceivers (currently available for Canon and Nikon). HSS enables shooting with flash at a faster shutter speed than the fastest external flash sync speed (x-sync) of the camera. This option can be extremely useful to limit the influence of ambient light when shooting in bright conditions.

HSS is either selected on the remote (Canon) or in the camera menu (Nikon), not on the flash. In the LCD Display [13] of the B1 a “[ ]” symbol will be visible a couple of seconds after every flash when HSS mode is used.

### Note!

*\* During a HSS flash, the flash is pulsing to provide a constant light output during the time when the shutter is open. To ensure a perfect exposure and a stable flash pulse, the B1 uses only the upper part of its power range when in HSS Mode. The HSS power range is currently 7.0-10.0 for Canon and 8.0-10.0 for Nikon but may change with later firmware.*

*\* Frequent use of HSS will have an impact on the life-time of the B1 flash tube.*

*\* Your Air Remote TTL may require a firmware update in order to use the HSS feature. The latest updates and a list of compatible cameras is available on profoto.com/myprofoto. Create your personal account and login to access all new upgrades.*

### Temperature limit indicator

The temperature limit indicator [25] is lit if the B1 has reached a temperature level that has activated the built-in over-temperature protection. When this occurs the performance is limited until the temperature level is back to an acceptable level.

## Check Firmware

1. Switch off the B1 unit.
2. Press and hold the ENERGY/SETTINGS dial [16] and then press and hold the TEST button [15] until the B1 switches on.
3. The current firmware version is shown on the Display [13] (for example: A7).

## Upgrade Firmware

We recommend that you look for firmware upgrades before you start using your new B1.

To access the latest free upgrades you create your personal account on [profoto.com/myprofoto](http://profoto.com/myprofoto). Once you have an account you can also choose to register your products and be sure you get noticed when new upgrades are released.

Upgrade of firmware is made via the USB port [10], following the instructions provided in the upgrade application downloaded from [profoto.com/myprofoto](http://profoto.com/myprofoto). You can always contact your local dealer or distributor for professional service with each upgrade.

## Technical data

Max energy	500Ws
Energy range f-stop	9 f-stop (2.0-10.0 ; 1/256-1/1)
Energy range Ws	2.0-500 Ws
Energy control increments	1/10 or full f-stops
Recycling time	0.1-1.9 s (Quick burst up to 20 flashes/second)
Modeling light	LED 20 W (Equivalent of 70 W Halogen)
Modeling light control	Off, Proportional, Free (5-100%)
Mode control	Freeze (shortest flash duration) or Normal (color balanced) mode.
Flash duration Normal mode (t0.5):	1/11,000 s (2Ws) - 1/1,000 s (500Ws)
Flash duration Freeze mode (t0.5):	1/19,000 s (2Ws) - 1/1,000 s (500Ws)
Energy stability Normal mode:	+ -1/20 f-stop flash to flash
Energy stability Freeze mode:	+ -1/20 f-stop flash to flash
Color stability Normal mode:	+ - 150K over range; + -20K flash to flash
Color stability Freeze mode:	+ - 800K over range; + -50K flash to flash
Light spread with built-in reflector	77 degrees
Guide number @ 2 m, 100 ISO with Magnum reflector	45 2/10
Battery type	Exchangeable Lithium-Ion Battery 14.8V/3Ah
Battery capacity	Up to 220 full power flashes
Battery life	300 charge cycles (to 80% capacity left)
Battery status indicator	Approx. battery level in percentage of the total capacity is indicated on the Display: 3 sections:           100-70% 2 sections:           70-40% 1 section:           40-10% 1 section blinking: <10%
Battery charging time	2 h (1h with Battery Charger 4.5A)

Auto power off	Sleep activated after 30 minutes of inactivity. Turns off completely after 1 hour of inactivity (Can be avoided by setting the B1 to deep sleep from any of the optional Air remote controls).
Battery operating temperature range	-10 °C to +50 °C (-4 °F to +120 °F)
Battery storage temperature range	-20 °C to +60°C (-20 °F to +140 °F)
Wireless sync	Yes, via all Air camera transmitters or IR (Slave)

All figures are to be considered as nominal and Profoto reserves the right make changes without further notice.

Technical data and product information are subject to change without notice.

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