CHEETAH

V850

Pioneering Li-ion Camera Flash

Instruction Manual

☑ Foreword

Before using this product
Please read this user manual carefully in order to ensure your safety and the proper operation of this product. Keep for future reference.

Thank you for purchasing a CHEETAH product.
V850 is the world's first Li-ion powered camera flash, pioneering innovation in the industry. Instead of AA batteries and external power pack (to reduce recycle time), V850 draws power from the professional Li-ion battery. This obviously enhances recycle, runtime, mobility, and portability performance. Fit all DSLR camera brands e.g. Canon, Nikon, Sony, etc. This V850 camera flash features:

- GN58 (m ISO 100, @105mm). Adjust from 1/1 to 1/128 in 1/3rd stops
- Pro 2000 mAh Li-ion Battery---max. 1.5s recycle---650 full power pops
- Super value and no messing with AA's, external power pack, chargers
- High speed sync, car charging, power & trigger control, MULTI function
- Stable consistency and color temperature with good even lighting
- User-friendly LCD display & control panel, max. 3 steps to setting up

☑ For Your Safety

⚠ Always keep this product dry. Do not use in rain or in damp conditions.

⚠ This product contains high-voltage electronic parts. Touching the high-voltage circuit inside it may result in electric shock. Do not disassemble. Should repairs become necessary, this product must be sent to an authorized maintenance center.

⚠ Stop using this product if it breaks open due to extrusion, falling or strong hit. Otherwise, electric shock may occur if you touch the electronic parts inside it.

⚠ Do not fire the flash directly into the eyes (especially those of babies) within short distances. Otherwise visual impairment may occur. When taking pictures for babies, keep the flash unit at least 1 meter (3.3 feet) away from them. Using bounce flash to reduce light intensity is also recommended.

⚠ Do not use the flash unit in the presence of flammable gases, chemicals and other similar materials. In certain circumstances, these materials may be sensitive to the strong light emitting from this flash unit and fire or electromagnetic interference may result.

⚠ Do not leave or store the flash unit in places where the ambient temperature reads over 50°C (e.g. in automobile). Otherwise the electronic parts may be damaged.

☑ Contents

Name of Parts

Body
01. Catchlight Panel
02. Built-In Wide Panel (Retracted)
03. Flash Head
04. Optic Control Sensor
05. Focus Assist Beam
06. Wireless Control Port
07. Sync Cord Jack
08. Hotshoe
09. Lock Ring
10. Li-ion Battery Compartment

Control Panel
11. < MODE > Mode Selection Button
12. < ZOOM/Fn > Zoom / Function Custom Button
13. < > LCD Backlight / Sound Beep Button
14. Select Dial
15. < SET > Set Button
16. ON/OFF Power Switch
17. < > Test Button / Flash Ready Indicator
18. < MF⚡/⚡H > Focus Assist Beam / High Speed Sync Button

LCD Panel

19. < M > Manual Flash Mode
20. < S₁ > S1 Slave Flash Triggering
21. < S₂ > S2 Slave Flash Triggering
22. < RPT > Multi/Stroboscopic Flash Mode
23. < ⚡H > High Speed Sync Triggering
24. < > Battery Level Indication
25. < > Sound Beep Indication
26. < Zᶻ > Sleep Status
27. < > Overtemperature Indication
28. < > Wireless Signal Transmission

What's in the Box of V850 Kit?
1. V850 flash unit*1
2. Li-ion Battery Pack*1
3. Battery Charger*1
4. Battery Charger Cable*1
5. Mini Stand*1
6. Protection Case*1
7. Instruction manual*1

What's in the Box of V850 (only flash unit)?
1. V850 flash unit*1
2. Mini Stand*1
3. Protection Case*1
4. Instruction manual*1

Separately Sold Accessories
The product can be used in combination with the following accessories sold separately, so as to achieve best photography effects:
CL-Tx/V850Rx power & trigger control, CellsII high speed trigger, Car charger, Mini softbox, White & Silver Reflector, Honeycomb, Color gels, Snoot, etc.

Battery

Features
1. This flash unit uses Li-ion polymer battery which has long runtime.It supports 500 charge-and-discharge times.
2. It is reliably safe. The inner circuit is against overcharge, overdischarge, overcurrent, and short circuit.
3. Take only 2.5 hours to fully charge the battery by using the standard battery charger.

• **Cautions**

1. Do not short circuit.
2. Do not expose to rain or immerse into water. This battery is not water proof.
3. Keep out of reach of children.
4. No over 24 hours' continuous charging.
5. Store in dry, cool, ventilated places.
6. Do not put aside or into fire.
7. Dead batteries should be disposed according to local regulations.
8. If the battery had ceased using for over 3 months, please make a full recharge.

• **Loading and Unloading the Battery**

To load the battery, open the battery compartment cover. Push the Li-ion battery pack into the compartment according to the arrow indication. A white knob will lock the battery with a lock sound.

To unload the battery, tap the white knob and the battery pack will pop out.

• **Battery Level Indication**

Make sure the battery pack is securely loaded in the flash. Check the battery level indication on the LCD panel to see the remaining battery level.

Battery Level Indication	Meaning
(Full icon)	Full
(Middle icon)	Middle
(Low icon)	Low
(Blinking icon) Blinking	Battery power will be empty and need to be charged immediately.

▼ *Attaching to a Camera*

1. Attach the Camera Flash.
Slip the camera flash's mounting foot into the camera's hotshoe all the way.

2. Secure the Camera Flash.
Rotate the locking screw on the mounting foot until it locks up.

3. Detach the Camera Flash.
Rotate the locking screw on the mounting foot until it is loosened.

▼ *Using the Flash*

1. Power Management
Use ON/OFF Power Switch (16) to power the flash unit on or off. Turn off if it will not be used for an extended period of time. This flash unit has Sleep Function and will enter into sleep status when there is no operation for a long time. For Sleep Function setting, see the following instruction.

2. Flash Output
Flash output can be varied from 1/128th power to 1/1 full power in 1/3 stop increments. To obtain a correct flash exposure, use a hand-held flash meter to determine the required flash output.
Adjust the power output by rotating Select Dial (14). The following table makes it easier to see how the stop changes in terms of f/stop when you increase or decrease the flash output:

Figures displayed when reducing flash output level→

1/1	1/1-0.3	1/1-0.7	1/2	1/2-0.3	1/2-0.7	1/4	...	OF
	1/2+0.7	1/2+0.3		1/4+0.7	1/4+0.3		...	

←Figures displayed when increasing flash output level

3. ZOOM: Setting the Flash Coverage

The flash coverage can be set to match the lens focal length from 24 mm to 105 mm. Press < $\frac{ZOOM}{Fn}$ > button (12) and rotate Select Dial (14) to change the flash coverage.

Note: When setting the flash coverage, make sure it covers the lens focal length so that the picture will not have a dark periphery.

4. M Mode: Manual Mode

Press MODE Selection Button (11) to enter M mode. In this mode, you can set the flash unit onto your camera hot shoe or your trigger hot shoe for firing.

Before shooting, adjust the flash power output. When the camera's shutter is pressed, the flash will fire synchronously. Slave triggering mode is not available in M mode.

5. S1 Mode: S1 Slave Triggering Mode

Press Mode Selection Button (11) to enter S1 mode. In this mode, the flash unit can function as a slave flash for creating multiple lighting effects. It is respectively applicable to manual flash environment.

In S1 mode, the flash unit will fire synchronously when the master flash fires, the same effect as that by the use of radio triggers.

6. S2 Mode: S2 Slave Triggering Mode

Press Mode Selection Button (11) to enter S2 mode. In this mode, the flash unit can function as a slave flash for creating multiple lighting effects. It is applicable when using a TTL master flash.

In S2 mode, the flash unit will ignore a single "preflash" from the master flash and will only fire in response to the second, actual flash from the master.

7. RPT Mode: Stroboscopic Flash

• Press Mode Selection Button (11) to enter RPT mode (Multi/Stroboscopic flash).

• With stroboscopic flash, a rapid series of flashes is fired. It can be used to capture multiple images of a moving subject in a single photograph.

• You can set the firing frequency (number of flashes per sec. expressed as Hz), the number of flashes, and the flash output.

For setting procedures, see the following:

1. Press the Mode Selection Button (11) so that "RPT" is displayed.
2. Press Set Button (15) to select the item to be set. The item blinks.
3. Rotate Select Dial (14) to set a desired number.

Calculating the Shutter Speed

During stroboscopic flash, the shutter remains open until the firing stops. Use the following formula to calculate the shutter speed required to capture the full sequence of flashes:

Number of flashes / Firing frequency = Shutter speed

For example, if the number of flashes is 10 and the firing frequency is 5 Hz, the shutter speed should be at least 2 sec.

Note:
• Stroboscopic flash is most effective with a highly reflective subject against a dark background.
• Using a tripod and a remote switch is recommended.
• A flash output of 1/1 or 1/2 cannot be set for stroboscopic flash.
• Stroboscopic flash can be used with "**buLb**".

Maximum Stroboscopic Flashes:

Hz / Flash Output	1	2	3	4	5	6-7	8-9
1/4	7	6	5	4	4	3	3
1/8	14	14	12	10	8	6	5
1/16	30	30	30	20	20	20	10
1/32	60	60	60	50	50	40	30
1/64	90	90	90	80	80	70	60
1/128	100	100	100	100	100	90	80

Hz / Flash Output	10	11	12-14	15-19	20-50	60-199
1/4	2	2	2	2	2	2
1/8	4	4	4	4	4	4
1/16	8	8	8	8	8	8
1/32	20	20	20	18	16	12
1/64	50	40	40	35	30	20
1/128	70	70	60	50	40	40

Note: To avoid overheating and deteriorating the flash head during stroboscopic flash, do not use stroboscopic flash more than 10 times in succession.

8. ⚡H Hi-Speed Sync Triggering

• To enter ⚡H mode, press < $\frac{MF\phi}{\text{⚡H}}$ > button (18) and hold for 2 seconds.

• To exit ⚡H mode, press Mode Selection Button (11) or press < $\frac{MF\phi}{\text{⚡H}}$ > button (18) and hold for 2 seconds again.

• In hi-speed sync triggering mode, you can use a hi-speed sync trigger to have your flash unit synchronized

Adjust power & high speed triggering

with all shutter speeds of cameras (max. 1/8000 second, up to your camera). This is convenient when you want to use aperture priority for fill-flash portraits.

Number of flashes that will activate over-temperature protection in high-speed sync triggering mode:

Power Output	Times
1/1	10
1/2(+0.3,+0.7);1/4(+0.3,+0.7)	15
1/8(+0.3,+0.7);1/16(+0.3,+0.7)	20
1/32(+0.3,+0.7);1/64(+0.3,+0.7);1/128(+0.3,+0.7)	30

⚠ To avoid overheating or deteriorating the flash head during high speed sync flash, the over-temperature protection function will be activated automatically after 10 continuous high-speed flashes and the recycle time becomes 10 seconds longer.

9. Custom Function-----Focus Assist Lamp
• Under poorly-lit or low-contrast conditions, you can press < $\frac{MF\ast}{\frac{2}{7}H}$ > button (18) to turn on the focus assist beam in order to make it easier to autofocus.
• The beam will automatically get out certain seconds after the last pop is fired. The time between the last fire and the auto shutdown of focus assist beam is called No-Flash Time. The time is user adjustable and set to 10 seconds by default.
• Press < $\frac{ZOOM}{Fn}$ > button and hold for 2 seconds to enter Custom Function. Then press "SET" button to enter "FC" mode. The LCD panel displays "FC"(Auto shutdown of focus assist lamp) and "No-Flash Time". Rotate Select Dial (14) to set a desired time for the flash. Press < $\frac{ZOOM}{Fn}$ > button to return.

No-Flash Time	Meaning
10 seconds	10 seconds after the last fire, focus assist lamp will automatically get out.
20 seconds	20 seconds after the last fire, focus assist lamp will automatically get out.
30 seconds	30 seconds after the last fire, focus assist lamp will automatically get out.

10. Buzz Function
To turn the buzz function on or off, press < ☼/🐾 > button (13) and hold for 2 seconds. When the buzzer is turned on, 🐾 is shown on the LCD display.
11. Wireless Control Function
• The flash unit is built in with a Wireless Control Port (6) so that you can wirelessly adjust the power level of the flash and control the on-or-off of your flash, focus assist

beam and buzzer, as well as trigger the flash.
• To control the flash wirelessly, you need a CL-Tx/V850Rx series remote control set (on-camera and on-flash). Insert its receive end into the Wireless Control Port (6) on the flash and insert the transmit end into the camera hot shoe.

Settings made on the hotshoe-mounted transmit and receive ends will be wirelessly communicated to the flash. Then you can press the camera shutter-release button to trigger the flash. You can also hold the transmit end at hand to control your off-camera flash.
• When the flash unit receives wireless signals, 📶 is shown on the LCD display.
• For full instructions on the use of CL series remote control, see its user manual.
12. Sync Triggering
The Sync Cord Jack (7) is a Φ2.5mm plug. Insert a trigger plug here and the flash will be fired synchronously with the camera shutter.
13. Custom Function----Sleep Function
• This product is equipped with Sleep Function to avoid battery drain when the flash unit is idle.
• Press < $\frac{ZOOM}{Fn}$ > button and hold for 2 seconds to enter the Sleep Function Mode. The LCD panel displays "SL" (Sleep) and "Sleeping Time". Idle time before entering Sleep Mode is 10 minutes by default. Rotate Select Dial (14) to set a desired time for the flash or to turn off Sleep Function. Press < $\frac{ZOOM}{Fn}$ > button to return.

Idle Time	Meaning
OF	Sleep Function is turned off. The flash unit will not automatically enter sleep mode.
3	Idle time before entering Sleep Mode is set to 3 minutes.
10	Idle time before entering Sleep Mode is set to 10 minutes.
30	Idle time before entering Sleep Mode is set to 30 minutes.
60	Idle time before entering Sleep Mode is set to 60 minutes.

• When the flash enters sleep mode, the LCD panel displays a " Z^z "icon.
• To wake up the flash unit, press any button on the flash unit, or press the camera release button, or press the trigger TEST button.

▼ Protection Function

1. Over-Temperature Protection
• To avoid overheating and deteriorating the flash head, do not fire more than 20 continuous flashes in fast succession at 1/1 full power. After 20 continuous flashes, allow a rest time of at least 10 minutes.

• If you fire more than 20 continuous flashes and then fire more flashes in short intervals, the inner over-temperature protection function may be activated and make the recycling time about 10 to 15 seconds. If this occurs, allow a rest time of about 10 minutes, and the flash unit will then return to normal.
• When the over-temperature protection is started, 🌡 is shown on the LCD display.

Number of flashes that will activate over-temperature protection:

Power Output Level	Number of Flashes	Power Output Level	Number of Flashes
1/1	20	1/8(+0.3,+0.7)	200
1/2 +0.7	30	1/16(+0.3,+0.7)	300
1/2 +0.3	40	1/32(+0.3,+0.7)	500
1/2	60	1/64(+0.3,+0.7)	1000
1/4（+0.3,+0.7）	100	1/128(+0.3,+0.7)	

2. Other Protections
The system provides real-time protection to secure the device and your safety. The following lists prompts for your reference:

Prompts on LCD Panel	Meaning
E0	A failure occurs on the temperature sensor. Please send this kit to a maintenance center.
E1	A failure occurs on the recycling system so that the flash cannot fire. Please restart the flash unit. If the problem still exists, please send this
E2	product to a maintenance center.
E3	The system gets excessive heat. Please allow a rest time of 10 minutes.
	The voltage on two outlets of the flash tube is too high. Please send this product to a maintenance center.

Advanced Application

1. Bounce Flash
By pointing the flash head toward a wall or ceiling, the flash will bounce off the surface before illuminating the subject. This can soften shadows behind the subject for a more natural-looking shot.

2. Creating a Catchlight
With the catchlight panel, you can create a catchlight in the subject's eyes to add life to the facial expression.

3. Using the Wide Panel
Pull out the built-in wide panel to enlarge the flash lighting range, so as to get more softened and natural lighting effect.

Technical Data

Product Model	V850 KIT (with battery & charger)
	V850 (only flash unit)
Guide No.	GN58 (m ISO 100)
(1/1 power @ 105mm)	GN190 (feet ISO 100)
Vertical Rotation Angle	-7° to 90°
Horizontal Rotation Angle	0 to 360°
Power Supply	Lithium-ion polymer battery pack (Model: VB-18)
Full Power Flashes	Approx. 650
Recycle Time	< 1.5 second
Flash Duration	1/300s - 1/20000s
Color Temperature	5600±200K
Dimension	64mm *76mm*190 mm
Weight	410g (net weight, only flash unit)
	530g (with Li-ion battery pack)

Maintenance

• Shut down the device immediately should abnormal operation be detected.
• Avoid sudden impacts and the lamp should be dedusted regularly.
• It is normal for the flash tube to be warm when in use. Avoid continuous flashes if unnecessary.
• Maintenance of the flash must be performed by our authorized maintenance department which can provide original accessories.
• This product, except consumables e.g. flash tube, is supported with a one-year warranty.
• Unauthorized service will void the warranty.
• If the product had failures or was wetted, do not use it until it is repaired by professionals.
• Changes made to the specifications or designs may not be reflected in this manual.