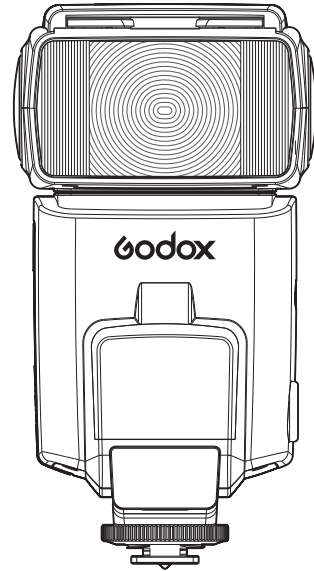# GODOX 神牛

THINKLITE
Electronic Camera Flash

TT660 II
说 明 手 册

中英文双语 / Chinese English Bilingual

Before using your product, please read this user manual carefully in order to ensure your safety. Keep it properly for reference in future.
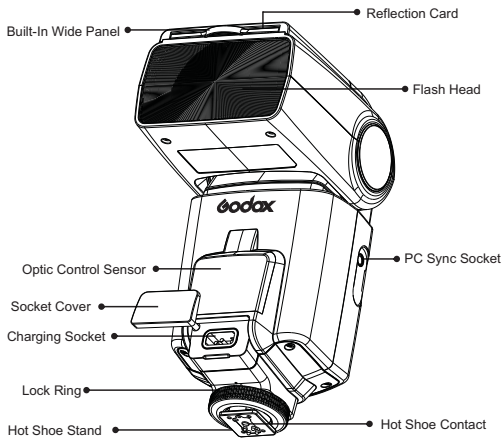
FOREWORD

Thank you for purchasing a GODOX product.
GODOX camera flash TT660II fits various standard hotshoe-mounted DSLR cameras from Canon, Nikon, Pentax, and Olympas, etc. The TT660II offers:

● Wide Power Control Range(1/1~1/128)
● 22 steps of precise adjustment to gain better light effect
● Stable color temperature of 5600±200K
● Supports Multi/Stroboscopic flash, S1/S2 slave triggering flash, etc
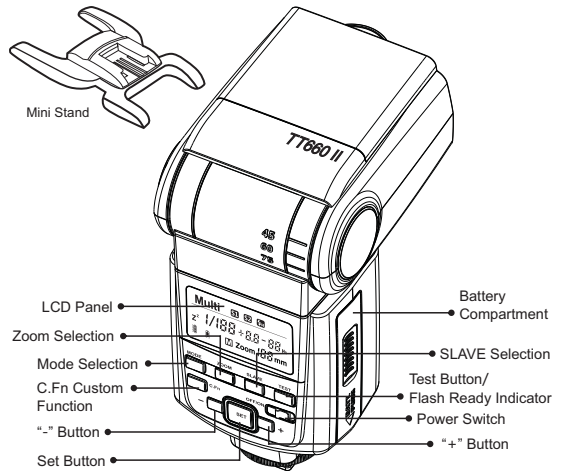● Achieving high-speed sync with remote control

⚠ WARNING

⚠ 1. Always keep this product from rain or damp to avoid fire or electric shock.

⚠ 2. This device contains high-voltage electronic parts inside. Do not disassemble or repair it. If you touch the high-voltage circuit inside the product, electric shock may occur. Send it to the authorized maintenance center for repair if needed.

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

⚠ 4. Do not fire the flash direct to the eyes (especially those of babies) at short distance, or it may damage eyes. When taking picture for babies, it is recommended to keep the flash unit at least 1 meter (3.3 feet) away from them. Using bounce flash to reduce light intensity is also suggested.

⚠ 5. Always keep batteries or anything that may pose an ingestion hazard out of children's reach. Please contact a doctor immediately if ingestion occurs.

6. When there is caustic liquid leakage inside, wear gloves before taking out batteries.

⚠ 7. Do not use the flash unit in the presence of flammable gas, chemicals and other similar materials. In specific circumstance, these materials may be sensitive to the strong light emitting from this flash unit and may cause fire or electromagnetic interference. Please pay attention to the warning marks in the shooting surroundings.

⚠ 8. Do not leave or store the flash unit in temperature over 40°C (e.g. in automobile), or it may damage the electronic parts.

⚠ 9. The flash unit is not waterproof. Please keep it away from rain or humidity.

⚠ 10. Please take out all batteries and keep the flash unit in dry places if it will remain unused for long.

I. Name of Parts

- Built-In Wide Panel
- Reflection Card
- Flash Head
- Optic Control Sensor
- PC Sync Socket
- Socket Cover
- Charging Socket
- Lock Ring
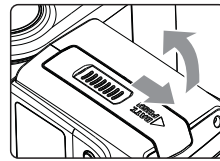- Hot Shoe Stand
- Hot Shoe Contact

Accessories
To achieve better performance and light effects, Thinklite camera flash can be operated with such products as, PB960 power pack, honey comb, color filter, etc.


- Mini Stand
- TT660 II
- LCD Panel
- Zoom Selection
- Mode Selection
- C.Fn Custom Function
- "–" Button
- Set Button
- Battery Compartment
- SLAVE Selection
- Test Button/ Flash Ready Indicator
- Power Switch
- "+" Button

II. Installation

1.Installing the Batteries
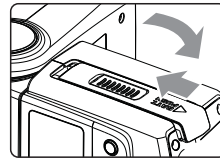**Install four-size AA batteries.**

1. Open the cover.
● Use your thumb to press the battery compartment cover, and then slide it to open the cover.
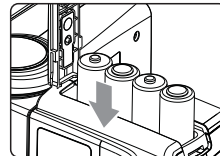
2. Install the batteries.
● Make sure the "+" and "–" battery contacts are properly oriented as shown in the compartment.

3. Close the cover.
● Slide the battery compartment cover as shown by the arrow to close it.

Recycling Time and Flash Count
Take AA alkaline batteries (LR6) as an example:

Recycling Time	Flash Count
Approx. 0.1–5sec	Approx. 100-700

● Based on new size-AA alkaline batteries.
● The battery level indication on the LCD panel will blink if the remaining battery level is too low to be charged. Please replace the batteries.

⚠ ● Using size-AA batteries other than the alkaline type may cause improper battery contact due to the irregular shape of the battery contacts.
● If you change the batteries after firing many flashes continuously, be aware that the batteries might be hot.

ℹ ● Use a new set of four batteries of the same brand. When replacing the batteries, replace all four at one time.
● Size-AA Ni-MH or lithium batteries can also be used.
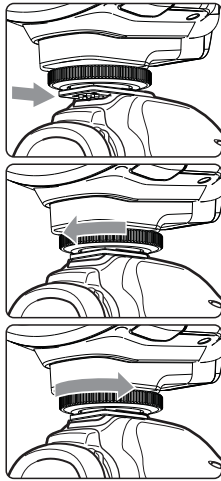
2. Attaching to the Camera

1. Attach the camera flash.
● Slip the camera flash's mounting foot into the camera's hot shoe 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 loosed.

III. Using the Camera Flash

1. Power Management
Use ON/OFF Power Switch to power the flash unit on or off. Turn off if it will not be used for an extended period of time.

2. Power Control
The flash output is adjustable from 1/1 full power to 1/128th power in 1/3rd step increments. To obtain a correct flash exposure, use a hand-held flash meter to determine the required flash output. Press the "-" or "+"button to adjust the flash power output.
● **M Mode:** Set the flash output from 1/1 full power to 1/128th power in 1/3rd step increments.
● **Multi Mode:** Set the flash output from 1/4 full power to 1/128th power in 1 step increments.
● **Manual High-Speed Mode:** Set the flash output from 1/1 full power to 1/16th power in 1/3rd step increments.

3. ZOOM: Setting the Flash Coverage
● Set the flash coverage manually to match the lens focal length from 24mm to 105mm.
● Press the ZOOM button and its settings can be adjusted by pressing "+"or "-"button.
   Note: When setting the flash coverage, the lens focal length should be covered in case of occurring dark periphery.

4. M Mode
Press Mode Selection Button to enter M mode. In this mode, you can set the camera flash onto your camera's hotshoe or trigger to fire flashes. During shooting, adjust the power output and press the camera shutter, then the camera flash will fire a flash under the camera synchronous signal.

5. Multi: Stroboscopic Flash
Press Mode Selection Button to enter Multi mode. With stroboscopic flash, a rapid series of flashes is fired. It can be used to capture a 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.
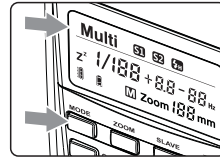
● Press MODE button so that < **MULTI** > is displayed.
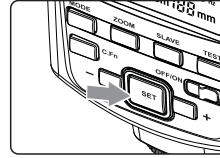
● Press the < **SET** >button to choose the adjustable projects. (Blinking)
● Press the "-"or "+"button to adjust the settings.

Calculating the Shutter Speed
During stroboscopic flash, the shutter remains open until the firing stops. Use the formula below to calculate the shutter speed and set it with the camera.
Number of Flashes / Flash 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 seconds.

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

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

Maximum Stroboscopic Flashes:

Flash Output / Hz	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	99	99	99	99	99	90	80

Flash Output / Hz	10	11	12-14	15-19	20-50	60-99
1/4	2	2	2	2	2	2
1/8	4	4	4	4	4	4
1/16	8	8	8	8	20	20
1/32	20	20	20	18	16	12
1/64	50	40	40	35	30	20
1/128	70	70	60	50	40	40

6. 🔲 High-Speed Sync
● Press MODE button makes the flash enter manual 🔲 mode.
● High Speed Sync (FP flash) enables the flash to synchronize with all camera shutter speeds. This is convenient when you want to use aperture priority for fill-flash portraits.
  Note:
  ● The FP flash function can only work properly with the high-speed remote control (e.g. Godox product CELLS II).
  ● High-speed sync function cannot be achieved when the flash is set on the camera's hotshoe.

⚠ ● Over-temperature protection may be activated after 10 consecutive high-speed sync flashes, and its recycle time is 10 seconds slower than the normal time.

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

Power	Times
1/1	10
1/2(+0.3,+0.7)	15
1/4(+0.3,+0.7)	20
1/8(+0.3,+0.7)	30
1/16(+0.3,+0.7)	40

7. S1 Mode
Press Slave Selection Button to enter S1 mode. In this mode, the camera flash can function as a slave flash for creating multiple lighting effects. It is respectively applicable to manual flash environment. With this function, the flash will fire synchronously when the main flash fires, the same effect as that by the use of radio triggers.

8. S2 Mode
Press Slave Selection Button to enter S2 mode. In this mode, the camera flash can function as a slave flash for creating multiple lighting effects. It is respectively applicable to TTL flash environment. With this function, the flash will ignore a single "preflash" from the main flash and will only fire in response to the second, actual flash from the main unit.

9. Sync Trigger Function
The Sync Cord Jack is a Φ3.5mm plug. Insert a trigger plug here and the flash will be fired synchronously with the camera shutter.

10. C.Fn: Setting Custom Functions

Signal	Function	Settings & Description	Operation Instructions
SL	Sleep Time Setting	Settable time: <3>3 min. <10>10 min. <30>30 min. <60>60 min. <OF> OFF	1. Press C.Fn button to enter custom setting state. 2. Press "-" or "+"button to adjust the sleep time. 3. Press C.Fn button to return. *Press any button to wake it up. *Please set a short sleep period if you do not use the flash, which extends the working time of the flash.
bL	Backlight Setting	Press the button to control backlight setting: <ON>：Consecutive lighting <12>：Lighting for 12 sec. <OF>：Off	1. Press C.Fn button to enter custom setting state. 1. Press "SET" button to enter "bL" adjustment state. 3. Press the "-" or "+"button to adjust the settings. 4. Press C.Fn button to return.

11. Protection Function
Over-Temperature Protection
To avoid overheating and degrading the flash head, do not fire more than 20 continuous flashes at 1/1 full power. After 20 continuous flashes, allow at least 10 minutes for the camera flash to cool down.
If you fire more than 20 continuous flashes and then fire more flashes in short intervals, the over-temperature protection function will be activated to make the recycling time about 10-15 sec. In such case, give the camera flash about 10 minutes' break to return to normal.
When the over-temperature protection is started, the 🔳 icon is shown on the LCD display.

Number of flashes that will activate over-temperature protection:

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

IV. Advanced Application

1. Bounce Lighting
When taking photos, you can point the flash head toward a wall or ceiling to bounce the light off the surface before illuminating the subject. This can soften shadows behind the subject for a more natural-looking shot.

2. Creating a Catchlight
Pull out the reflection card and built-in wide panel from the flash head at the same time and then push the built-in wide panel back. With the reflection card, you can create a catchlight in the subject's eyes to add life to the facial expression. This function can reach optimal effect when the flash head is 90° upwards.

3. Use 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.

V. Technical Data

Model	TT660II
Power	4*AA batteries: LR6 alkaline or Ni-MH rechargeable batteries (preferred)
Guide No. (m ISO 100)	58(1/1 ZOOM 105mm)
Vertical rotation angle	-10-90 degrees
Horizontal rotation angle	0-270 degrees
Color temperature	5600k±200k
Recycle time	Approx. 0.1~5s (AA alkaline batteries used)
Flash duration	1/300s-1/20000s
Multi Flash	1~99times; 1~99Hz
Dimension	83mm*154mm*112mm
Net weight	380g

Accessories:
1-Flash unit   1-Protecting bag   1-Mini stand
1-Instruction manual
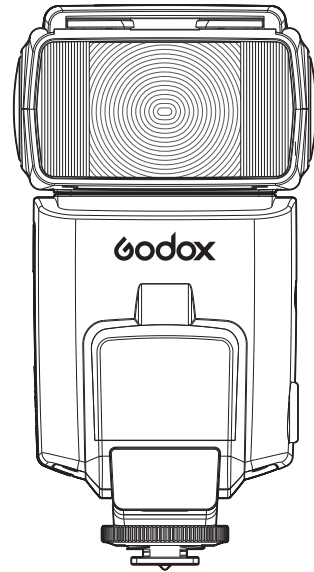
VI Maintenance

● Shut down the device immediately should abnormal operation be detected.
● Avoid sudden impacts and the product 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.

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THINKLITE
Electronic Camera Flash

TT660 II
说　明　手　册

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　　在使用本产品之前，请先仔细阅读本手册，以确保您能安全使用。请保存好本手册以备将来查询参考。

前言
感谢您购买神牛产品。
　　神牛机顶闪光灯TT660Ⅱ，适用于各种品牌中带标准热靴的单反相机，包括佳能、尼康、宾得、奥林巴斯等。产品具有以下亮点：
　● 功率调节范围大(1/1~1/128), 22级精确微调, 光效把握更随心
　● 色温恒定，全程保持5600±200K
　● 支持频闪，S1/S2光控引闪等
　● 使用专配遥控器，可实现高速同步功能。