Godox 神牛

# 迅丽TTL机顶闪光灯
# Thinklite TTL Camera Flash

# TT685O

For Olympus/Panasonic

**INSTRUCTION MANUAL**
**说　明　手　册**
中英文双语 / Chinese English Bilingual

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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。

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.

## 前言

**感谢您购买神牛产品。**

该型号机顶闪光灯适用于Olympus/Panasonic系列相机，兼容TTL 自动闪光。使用TTL闪光灯，您将获得更简单的拍摄体验，在光线变化复杂的情况下，可以自动获得准确的闪光曝光，拍摄轻松自如。产品特点突出表现在以下几方面：

- **GN60 (m ISO 100, @200mm), 22级调光(1/1~1/128)**
- **兼容Olympus/Panasonic相机TTL**
  支持TTL自动闪光，可作为无线多灯闪光系统的主控或从属单元，拍摄更简单快捷
- **点阵液晶屏**
  显示直观，操作更加简易
- **内置2.4G无线传输**
  收发一体，超远距离，创意无限
- **无线功率遥控触发**
  选购FT-16S遥控器，可对离机闪光灯进行无线功率调节等参数设置，同时触发引闪
- **功能齐全，无限享用**
  支持手动和频闪闪光模式，高速同步/第二帘快门同步/闪光曝光补偿等功能
- **光学研究，输出稳定**
  高速连闪，每次输出亮度和色温连续一致(5600±200K)，光线均匀分布
- **固件升级，兼容无忧**
  跟随原厂相机步伐，可对软件进行再升级



## ⚠ 警 告

- ⚠ 请保持干燥。
- ⚠ 请勿私自拆卸产品，如产品出现故障须由本公司或授权的维修人员进行检查维修。
- ⚠ 请勿让儿童接触本产品。
- ⚠ 禁止拆卸、撞击、挤压或投入火中，若出现严重鼓胀，请勿继续使用。请勿放置在超过50度的高温环境中。
- ⚠ 请勿将闪光灯头正对人眼闪光(特别是婴儿的眼睛)，否则可能会在短时间内造成视力障碍。
- ⚠ 请勿在化学品、可燃性气体或其他特殊物质附近使用闪光灯，这些物质在特殊情况下可能对闪光灯发出的瞬间强光敏感，有可能导致火灾或电磁干扰。在这些场合下，请注意相关警告标识。
- ⚠ 本产品不能防水，在雨天及潮湿环境下请注意防水。
- ⚠ 若发生任何故障，请立即关闭闪光灯电源。

迅丽
THINKLITE
Electronic Camera Flash

# 迅丽**TTL**机顶闪光灯
Thinklite **TTL** Camera Flash

本说明书中使用的约定

- 此使用说明书中的操作步骤假定相机和闪光灯的电源开关已开启。
- 参考页码由(第**页)表示。
- 此使用说明书中使用以下警告符号：

⚠ 该“小心”符号表示避免出现拍摄问题的警告。

该“注意”符号提供补充信息。



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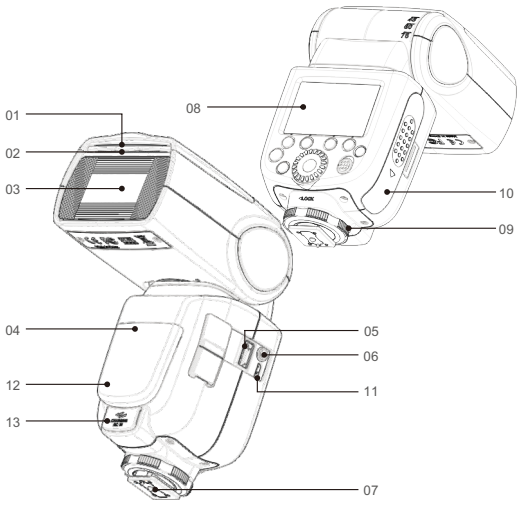
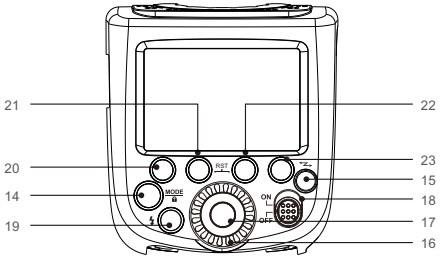
## 部件名称




### ● 机身

**01.** 眼神光板
**02.** 内置广角散光板
**03.** 闪光灯头
**04.** 无线传感器
**05.** 无线控制插座
**06.** 同步插孔
**07.** 热靴
**08.** 点阵LCD显示屏
**09.** 固定旋钮
**10.** 电池仓
**11.** USB端口
**12.** 从属单元状态指示灯
**13.** 外部电源插槽



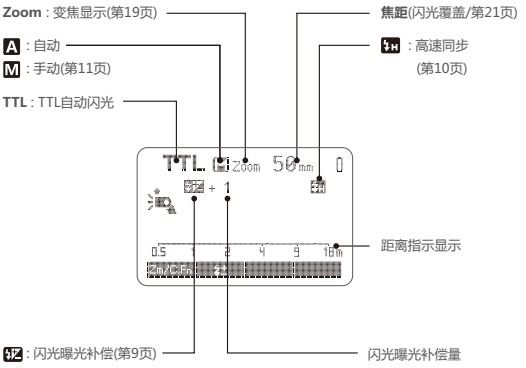

### ● 控制面板

**14.** <**MODE**>闪光模式选择按钮/锁定按钮
**15.** < >无线按钮
**16.** 调节旋钮
**17.** <**SET**>设置按钮
**18. ON/OFF**电源开关
**19.** < >试闪按钮/回电指示灯
**20.** 功能按钮1
**21.** 功能按钮2
**22.** 功能按钮3
**23.** 功能按钮4



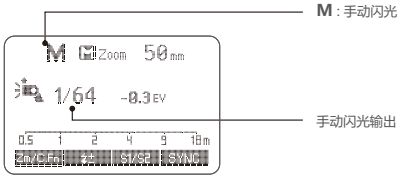
### ● LCD显示屏

**(1) TTL自动闪光**

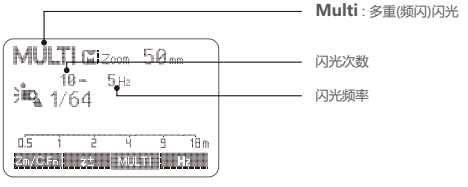



● 显示屏将只显示当前应用的设置。
● 在功能按钮1至功能按钮4上方显示的功能(如< SYNC >和< >)根据设置的状态发生变化。
● 当操作按钮或拨盘时，LCD显示屏点亮。

**(2)M手动闪光**

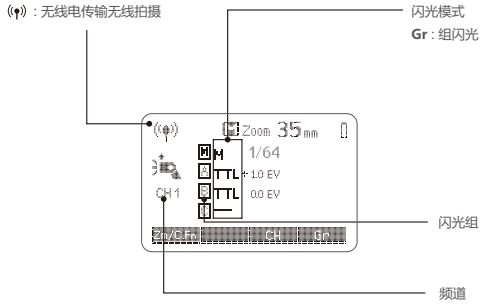



**(3)Multi频闪闪光**

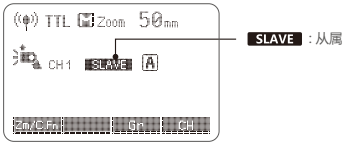


**(4)无线电传输拍摄**

● 主控单元




● 从属单元



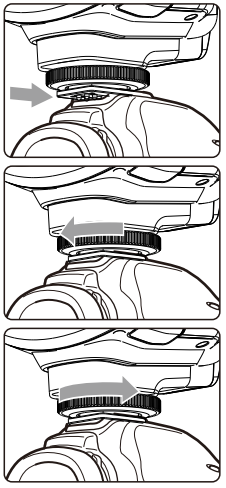

## ● 标配物品

**1**、灯体　**2**、微型底座　**3**、保护包　**4**、说明书

## ● 可选购附件

可搭配本公司以下摄影附件使用，以获得最佳的拍摄效果和使用体验：**X1T-O无线引闪器、FT-16S功率遥控器、迷你柔光箱、反光板、蜂巢、色片、束光布**等。

## 装卸闪光灯



1 安装闪光灯。
- 滑动闪光灯固定座使其完全插入相机的热靴插座。

2 拧紧闪光灯。
- 旋转固定座上的锁定旋钮，直到锁定闪光灯。

3 取下闪光灯。
- 旋转固定座上的锁定旋钮，直到闪光灯解除锁定。

## 电源管理

* ON/OFF电源开关控制该产品的打开和关闭，长时间不使用时请关闭电源。本产品设计有电源自动关闭功能。作为主控单元在长时间（约90秒）无人操作时，闪光灯会自动关闭，半按快门按钮或机身任意键唤醒；作为从属单元在60分钟（或者选择30分钟）无任何操作时，闪光灯会进入休眠状态，此时可按机身任意键唤醒。

C.Fn 离机使用时，建议通过自定义功能使“自动关闭电源”无效。(C.Fn-APO 第20页）

C.Fn “从属单元自动关闭电源计时器”出厂默认设置为60分钟，也可自定义选择30分钟。(C.Fn-SvAPOT 第20页）

## 闪光模式：TTL自动闪光模式

该闪光灯有**TTL**自动闪光，**M**手动闪光，**Multi**频闪闪光三种模式。在**TTL**模式下，相机的测光系统会侦查从主体反射回来的闪光照明，从而自动调节闪光输出量，使主体和背景得到均衡曝光。支持曝光补偿、高速同步、第二帘快门同步等功能。

***** 按下<**MODE**>模式选择按钮，三种闪光模式将会依次出现在液晶屏上。

### TTL模式

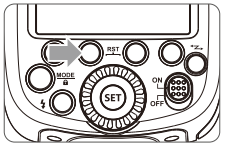
通过按<**MODE**>模式选择按钮，将闪光灯设置为<**TTL**>，可以使闪光灯进入TTL模式。

- 半按相机快门按钮进行对焦，光圈值和有效闪光范围将会显示在显示屏上。
- 在快门释放前的瞬间进行一次预闪，闪光灯接收相机信息进行主闪光。

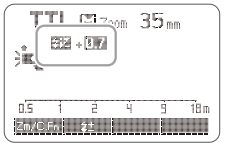
### 闪光曝光补偿

该闪光灯可以在±3档间以1/3档为增量调节闪光曝光补偿。由于环境的需求而需要微调TTL系统时，这个功能非常有用。

**设置闪光曝光补偿：**

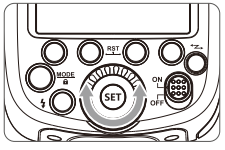



1 按下功能按钮2< ±ϟ >，令屏幕显示< ϟ >图标，并且闪光曝光补偿量被突出显示




2 设置闪光曝光补偿量。

- 转动调节旋钮设置曝光补偿量。
- "0.3"表示1/3档，"0.7"表示2/3档。
- 要取消闪光曝光补偿，将闪光曝光补偿量设为"+0"。




3 按下< **SET** >设置按钮，确定闪光曝光补偿。

### 高速同步

使用高速同步(FP闪光)，您可以在所有的快门速度下同步使用闪光灯。高速同步模式下，使用光圈优先对人像进行填充闪光时特别方便。

按<SYNC>按钮可开启高速同步闪光，此时高速符号< ϟH >显示，然后调节相机快门可实现高速同步闪光。

- 使用高速同步，快门速度越高，有效的闪光范围就越小。
- 在高速同步模式下，无法设置频闪闪光。
- 连续高速同步闪光15次后，闪光灯热保护功能可能会被激活。
- 尽量不使用高速同步闪光，因为高速同步闪光会缩短闪光管寿命。
- 注意: Panasonic相机在无线遥控模式下,高速同步闪光有不同步现象产生！

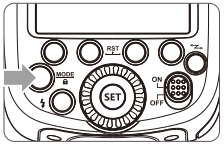
### 第二帘快门同步

使用慢速快门，您可以在被摄物体后创建一条光线轨迹。在快门关闭前的瞬间闪光灯闪光。

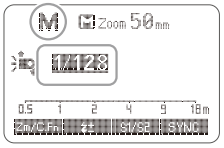
后帘同步功能在相机菜单里设置，请查看相机说明书。

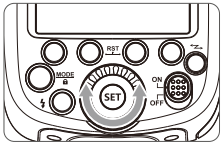
## 闪光模式：**M** 手动闪光

您可以在1/128功率至1/1全功率间以1/3档为增量设置闪光输出。为获得正确的闪光曝光，请使用手持的闪光测光表确定所需的闪光输出。



1 按<**MODE**>模式选择按钮，屏幕显示<**M**>。



2 转动调节旋钮设置闪光输出功率。

3 按下<**SET**>设置按钮，确定闪光输出功率。

**显示闪光输出**

拍摄过程中更改闪光输出时，下表将清楚地显示光圈值是如何更改的，如1/2-0.3→1/2+0.3。您可以在增加或减少闪光输出时查看光圈值的更改规律。

例如，将闪光输出量减少至1/2、1/2-0.3或1/2-0.7，然后再将其增加至大于1/2、1/2+0.3、1/2+0.7时，将显示1/1。

减少闪光输出指数→

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1/1 | 1/1–0.3 | 1/1-0.7 | 1/2 | 1/2-0.3 | 1/2-0.7 | 1/4 | ····· |
| | 1/2+0.7 | 1/2+0.3 | | 1/4+0.7 | 1/4+0.3 | | ····· |

←增加闪光输出指数

**S1光控单元设置**

在**M**手动闪光模式下，按**功能按钮3**<**S1/S2**>可以使用S1功能，闪光灯可作为副灯使用，创造多种照明效果，适用于手动闪光环境。它会与主闪光灯的第一次闪光同步触发闪光，效果与使用无线引闪器一致。

**S2光控单元设置**

在M手动闪光模式下，按**功能按钮3**<**S1/S2**>可以使用S2功能，闪光灯可作为副灯使用，适用于TTL闪光环境。具有防预闪功能，使用带一次预闪功能的相机能用光控实现同步拍摄。它会与主闪光灯的第二次闪光同步触发闪光，即2次光控引闪。

**手动离机高速设置(非神牛X无线系统)**

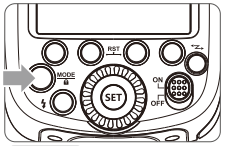
在M手动闪光模式下, 按功能按钮4 **SYNC** 选择高速模式， **H** 显示 。此时引闪，会进行高速闪光。

● 只有在M模式下才支持S1/S2光控引闪模式和离机高速模式。

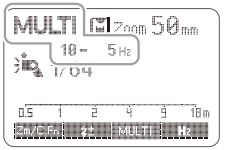


## 闪光模式：**Multi** 频闪闪光

使用频闪闪光，可以发出一系列快速的闪光。它可以在一张照片上拍摄移动物体的多个图像。您可以设置闪光频率(每秒的闪光次数，以Hz表示)、闪光次数和闪光输出。

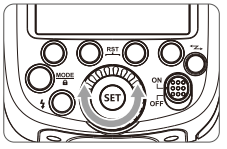


1 按<**MODE**>闪光模式选择按钮，屏幕显示<**MULTI**>




2 转动调节旋钮设置闪光输出功率。

- 按功能按钮3<**MULTI**>选择闪光次数，旋转调节旋钮设定数字。
- 按功能按钮4<**Hz**>选择闪光频率，旋转调节旋钮设定数字。



3 按下<**SET**>设置按钮确定，所有设置都将显示出来。

**计算快门速度**

在频闪闪光过程中，到闪光停止为止快门应保持开启状态。使用下面的公式计算快门速度，然后用相机进行设置。

**闪光次数/闪光频率 = 快门速度**

例如，如果闪光次数是10，闪光频率是5Hz，快门速度则至少为2秒。

⚠ 为防止闪光灯头过热并损坏，请勿执行连续10次以上的频闪闪光连拍。闪光10次后，请让闪光灯至少冷却15分钟。如果您试图执行连续10次以上的频闪闪光连拍，为防止闪光灯头过热，闪光可能自动停止。如果发生了这种情况，请让闪光灯至少冷却15分钟。

- 反光很强的被摄体在暗背景前使用频闪闪光更加有效。
- 推荐使用三脚架和遥控开关。
- 闪光输出为1/1和1/2时不能设置频闪闪光。
- 频闪闪光时也可以使用“**buLb**”。
- 如果闪光次数显示为--，则闪光灯会连续闪光，直到快门或电池耗尽。如下表所示，闪光次数将受到限制。

**最大频闪闪光次数**

| 闪光输出 \ Hz | 1 | 2 | 3 | 4 | 5 | 6-7 | 8-9 | 10 | 11 | 12-14 | 15-19 | 20-50 | 60-200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/4 | 7 | 6 | 5 | 4 | 4 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 |
| 1/8 | 14 | 14 | 12 | 10 | 8 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 |
| 1/16 | 30 | 30 | 30 | 20 | 20 | 20 | 10 | 8 | 8 | 8 | 8 | 8 | 8 |
| 1/32 | 60 | 60 | 60 | 50 | 50 | 40 | 30 | 20 | 20 | 20 | 18 | 16 | 12 |
| 1/64 | 90 | 90 | 90 | 80 | 80 | 70 | 60 | 50 | 40 | 40 | 35 | 30 | 20 |
| 1/128 | 100 | 100 | 100 | 100 | 100 | 90 | 80 | 70 | 70 | 60 | 50 | 40 | 40 |

## 无线闪光拍摄：无线电(2.4G)传输

- 无线电创意系统，支持创建三个从属单元组，并实现TTL自动闪光。您可以通过TTL自动闪光轻松获取多种照明效果。
- 使用主控单元按组分别设置的任何TTL自动闪光，手动闪光和频闪闪光设置都会被自动传输到从属单元。因此，在拍摄时无需操作从属单元。只需在主控单元上对每个从属组进行单独设置就可完成。
- 将此产品设置为主控单元时，可以在**TTL/M/Multi/OFF**四种闪光模式下工作。

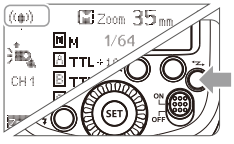
TT685O作为从属单元时，可以兼容神牛X1系列发射器：
X1T-C(佳能)、X1T-N(尼康)、X1T-S(索尼)、X1T-F(富士)、X1T-O(奥林巴斯、松下)。

- 即使有多个从属单元，主控单元也可通过无线控制控制所有的闪光灯。
- 本说明手册中，“主控单元”指安装在相机上的闪光灯，“从属单元”指通过无线控制的闪光灯。

### 1、无线设置

您可以在普通闪光和无线闪光之间切换。对于普通闪光，请务必将无线设置设为“关”。

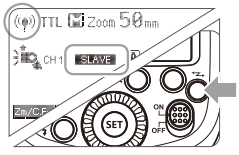
**主控单元设置**




1 按下<⁴z₊>无线设置按钮，令屏幕显示 < ((•)) >。如显示<((•)) **MULTI**>，表示频闪模式。

2 此时背光显示绿色。

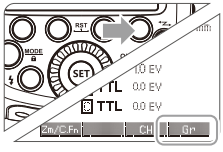
**从属单元设置**

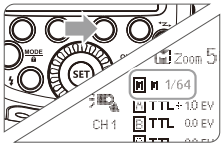



1 按下<⁴z₊>无线设置按钮，令屏幕显示<((•))>和< SLAVE >。

2 此时背光显示橙色。

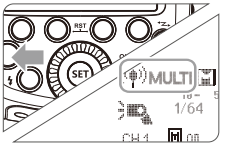
### 2、设置主控闪光灯的闪光模式




1 按功能按钮4< Gr >选择**M/A/B/C**组别，再按功能按钮3 <MODE> 选择主控单元的闪光模式可以在**OFF / TTL / M** 之间进行切换，选择其中一种作为主控单元的闪光模式。

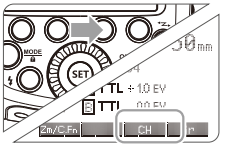




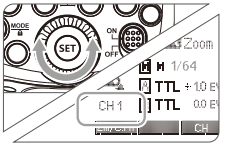

2 按 < MODE >按钮可切换至Multi模式。

### 3、设置通讯频道

如果在拍摄现场不止一个无线闪光系统，您可以通过更改通讯频道来防止信号干扰。保证主控单元和从属单元设置为相同的频道编号即可。



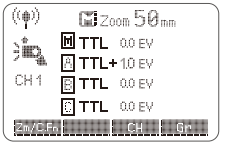

1 按下功能按钮3< CH >。旋转调节旋钮从1至32中选择频道。




2 按下<**SET**>设置按钮确定。

### 4、TTL: 全自动无线闪光拍摄

**使用一个从属单元闪光**

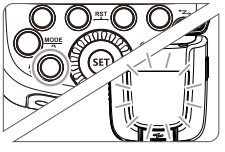


1 **设置主控单元**
●将安装在相机上的TT685O设为主控单元。(第13页)
●**M/A/B/C**都可独立设置为**TTL**。

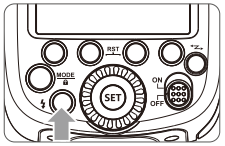
2 **设置从属单元**
●将要被无线控制的TT685O设为从属单元。（第13页）
● 可以选择**A/B/C**。

3 **检查传输频道**
● 将主控单元和从属单元的频道设为一致。（第14页）

4 **定位相机和闪光灯**
● 将其定位在（第16页）所示的范围内。




5 **检查闪光灯是否准备就绪**
● 检查主控闪光灯就绪指示灯点亮。
● 当从属闪光灯就绪时，自动对焦辅助光发光区域以1秒间隔闪烁。



**6** **检查操作**

- 按下主控闪光灯的试闪按钮<ϟ>。
- 从属单元闪光。如果从属单元不闪光，检查是否将其放置在操作范围内。

⚠ 如果从属单元附近有荧光灯或电脑显示器，这些光源的存在可能会导致从属单元发生故障，并导致其意外闪光。

- 如果从属单元的自动关闭电源生效，按主控单元的测试闪光按钮打开从属单元。请注意在相机的测光定时工作期间，无法进行测试闪光。
- 可以改变到从属单元的自动关闭电源生效为止的时间（C.Fn-Sv APOT/第20页）。
- 可以进行设置以使自动对焦辅助发射器在从属单元回电完毕时不闪烁（C.Fn-AF/第20页）。

**使用全自动无线闪光**

在主控单元上设定的闪光曝光补偿和其他设置也会在从属单元中自动设定。不需要操作从属单元。可按照与普通闪光拍摄相同的方法使用以下设置进行无线闪光拍摄。

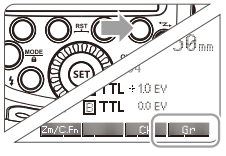
- 闪光曝光补偿( ϟ± /第09页)

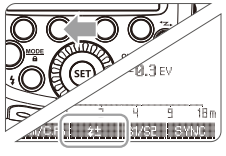
**关于主控单元**

可以使用两个或两个以上主控单元。通过准备多台装有主控单元的相机，可以在保持相同照明（从属单元）期间更换相机进行拍摄。

## 5、M:手动无线闪光拍摄

使用手动闪光的无线（多重闪光）拍摄，可以为每个从属单元（闪光组）设定不同的闪光输出进行拍摄。在主控单元上设定所有参数。





**1** **将闪光模式设为<M>。**

- 按下功能按钮4 <Gr>选择组别，再按功能按钮3 <MODE> 设定为M模式。

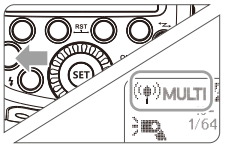
**2** **设置闪光输出**

- 在选择组别状态下，按功能按钮2 <ϟ±>选择功率设定，旋转调节旋钮为闪光组设定闪光输出，并按<**SET**>设置按钮确定。

**3** **拍摄照片**

- 各组以设定的闪光光比闪光。

## 6、Multi:手动无线闪光拍摄



**设定<Multi>频闪模式。**

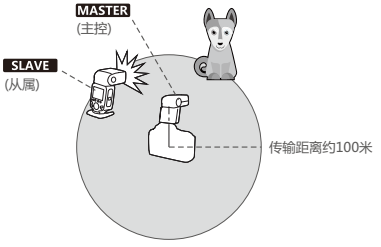
- 按下<MODE>模式选择按钮令屏幕显示 <((ϟ)) **MULTI**>。
- 设定频闪闪光设置。(第12页)

使具有无线电传输无线拍摄功能的闪光灯（主控/从属），可按照与普通TTL自动闪光拍摄同样的方法，轻松利用高级无线多重闪光照明进行拍摄。

基本相对位置和操作范围如图所示，只要将主控单元设定为<TTL>就可以进行无线自动闪光拍摄。

**定位和操作范围**(无线闪光拍摄的示例)

- 使用一个从属单元进行自动闪光拍摄

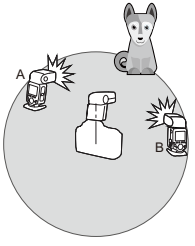



- 使用附带的微型支架定位从属单元。
- 开始拍摄前请进行测试闪光和试拍。
- 受从属单元的位置、周围环境、天气状况等影响，传输距离可能更短。

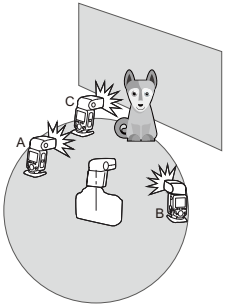
**无线多重闪光拍摄**

可以将从属单元分割为两个或三个组同时进行TTL自动闪光拍摄。此外，可以为各闪光组（最多3个组）设定并用不同的闪光模式拍摄。

- 用两个从属组进行自动闪光拍摄。



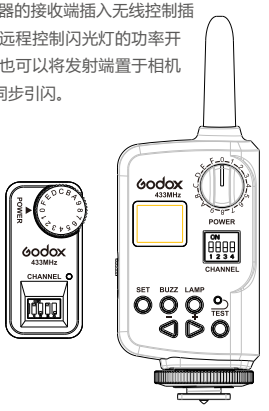
● 用三个从属组进行自动闪光拍摄。




## 其他应用

### 外置无线控制功能

闪光灯内置无线控制插座，配合特定遥控器使用，您可以实现对闪光灯的无线控制。将FT系列遥控器的接收端插入无线控制插座，手持遥控器发射端，即可远程控制闪光灯的功率开关和大小、闪光灯触发等。您也可以将发射端置于相机热靴上，通过相机快门来进行同步引闪。




● 更多遥控器的使用方法，请查阅FT系列遥控器的说明书。

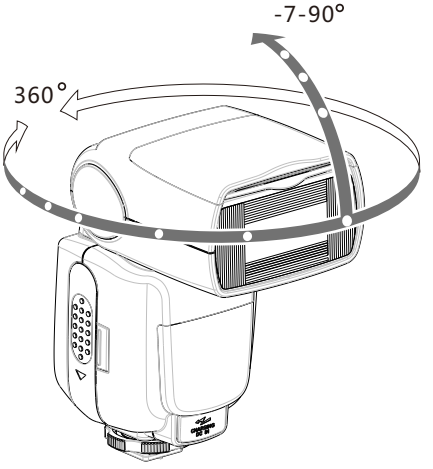
### 同步插孔触发

同步插孔规格为Φ3.5mm，此处可插入同步线或者触发器触发插头对闪光灯进行同步引闪。

### 反射闪光

通过将闪光灯头指向墙壁或天花板，闪光在照亮被摄体前被墙面反射。这可以减轻被摄物体背后的阴影，获得更自然的摄影效果。称之为反射闪光。

**旋转闪光灯头来设置反射方向。**

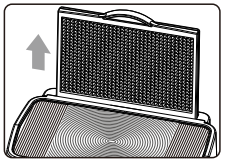



● 如果墙壁或天花板太远，反射闪光可能太弱并导致曝光不足。

● 墙壁或天花板应该是平坦的、白色的以利于高效的反射。如果反射表面不是白色的，照片将出现偏色。

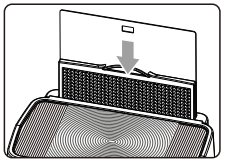
## 创建眼神光

使用眼神光板，您可以在被摄体的眼睛中创建眼神光以使面部表情更加生动。



1 将闪光灯头向上旋转90°。

2 拉出广角散光板，同时眼神光板自动弹出。

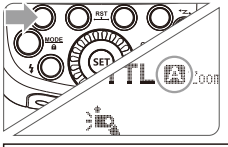


3 推入广角散光板。
- 仅推入广角散光板。
- 按照反射闪光中相同的步骤进行。

⚠
- 请将闪光灯头向前指然后向上旋转90度。如果左右旋转闪光灯头就不会产生眼神光。
- 要获得最好的眼神光效果，被摄体不能处于相机1.5米/4.9英尺以内。

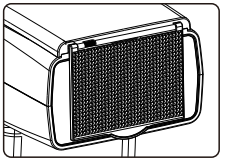
## ZOOM：设置闪光覆盖范围并使用广角散光板

该闪光灯有两种变焦方式：自动变焦和手动变焦。可以设置闪光覆盖范围以匹配10-100mm(4/3系统)的镜头焦距。自动变焦时，焦距会随相机变焦镜头的改变而变化，以提供最佳闪光效果。同样，使用内置的广角散光板，闪光覆盖范围可以扩展为7毫米广角镜头。
设置闪光覆盖范围有2种显示方式：4/3和135系统。在C.Fn-Zoom进行选择。



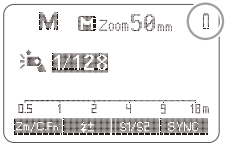

**手动变焦时，按下<ZOOM/C.FN>变焦/无线设置按钮。**
- 转动调节旋钮更改闪光覆盖范围。
- 在显示<A>状态下，将自动设置闪光覆盖范围。

- 如果手动设置闪光覆盖范围，确保其覆盖镜头焦距，这样照片就不会出现阴影边缘。



**使用广角散光板**

拉出广角散光板并将其置于闪光灯头上。闪光覆盖范围将扩展至7毫米。
- 同时弹出眼神光板。请推回眼神光板。
- <**ZOOM/C.FN**>按钮不起作用




**电池电量低时，电池符号< > 会闪烁，此时请更换电池。**



## C.Fn：设置自定义功能

请对照以下图表本机应用栏，使用自定义功能来完成设置。

| 自定义功能符号 | 功能 | 设置符号 | 设置和说明 |
|---|---|---|---|
| m/ft | 距离指示显示 | m | 米 |
| | | ft | 英寸 |
| APO | 自动关闭电源 | ON | 启动 |
| | | OFF | 关闭 |
| ZOOM | 镜头系统 | 4/3 | 4/3系统 |
| | | 135 | 135系统 |
| Sv APOT | 从属单元自动关闭电源计时器 | 60min | 60分钟 |
| | | 30min | 30分钟 |
| BEEP | 蜂鸣器 | ON | 启动 |
| | | OFF | 关闭 |
| LIGHT | 背光点亮时间 | 12sec | 12秒后自动熄灭 |
| | | OFF | 一直熄灭 |
| | | ON | 一直点亮 |
| LCD | 液晶屏对比度 | 0~9 | 10个级别 |

1. 长按< **Zm/C.Fn** >背光/自定义按钮2秒或更长，直到显示C.Fn菜单。右上角“Ver x.x“表示软件版本号。
2. 选择自定义功能符号。
   旋转调节旋钮设置自定义功能符号。
3. 更改设置。
   - 按 < **SET** > 设置按钮，自定义功能编号闪烁。
   - 旋转调节旋钮设置想要的编号，按 < **SET** > 按钮确定。
   - 设置自定义功能后按下<**MODE**>模式选择按钮，相机可以进行拍摄。
4. 在C.Fn状态下，长按“Clear”按钮2秒直至出现“OK”，表示重置C.Fn的参数。

## 保护功能

### 1. 热保护

- 为防止闪光灯头过热并损坏，请勿在1/1功率时进行超过30次的快速连续闪光。30次连续闪光后，要让闪光灯至少冷却10分钟。
- 如您在进行超过30次连续闪光后马上继续进行更多次闪光，内部的防过热功能可能会被激活，使充电时间变为10秒以上。如果发生这种现象，请让闪光灯冷却约10分钟，闪光灯便会恢复正常。
- 热保护启动后，显示屏上 的符号会显示。

**激活热保护功能的连续闪光次数：**

| 功率 | 次数 |
|---|---|
| 1/1 | 30 |
| 1/2 +0.7 | 40 |
| 1/2 +0.3 | 50 |
| 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) | 1000 |
| 1/128(+0.3,+0.7) | |

**高速同步模式下，激活热保护功能的连续闪光次数：**

| 功率 | 次数 |
|---|---|
| 1/1 | 15 |
| 1/2(+0.3,+0.7); | 20 |
| 1/4(+0.3,+0.7) | 30 |
| 1/8(+0.3,+0.7); | |
| 1/16(+0.3,+0.7) | 40 |
| 1/32(+0.3,+0.7); | |
| 1/64(+0.3,+0.7); | 50 |
| 1/128(+0.3,+0.7); | |

### 2. 其他保护

- 为了保证设备安全的工作，系统时刻进行预防保护，以下提示符号供您参考：

| LCD显示 | 警示内容 |
|---|---|
| E1 | 闪光灯回电系统出现问题，无法回电引闪，请重新开机，如无法解决请维修 |
| E2 | 设备内温度过高，请停止引闪10分钟 |
| E3 | 闪光灯管两端电压过高，请维修 |
| E9 | 固件升级有误，请进行正确固件升级 |

## 固件升级

本机通过USB插座可进行固件升级。软件最新公告及说明将会发布在官方网站上。



- 注:本品出厂不配USB升级线，请另行购买。普通的USB线可使用，本产品USB口为Micro USB 接口。

## 规格参数

| 型号 | TT685O |
|---|---|
| • 类型 | |
| 兼容相机 | Olympus/Panasonic相机 (查看兼容列表) |
| 闪光指数<br>(1/1档位；200mm焦距) | 60(m ISO 100)<br>190(feet ISO 100) |
| 闪光覆盖范围 | 10 – 100毫米(4/3系统) 或20-200毫米(135系统) |
| | •自动变焦(自动设置适合镜头焦距和图像尺寸的闪光覆盖范围) |
| | •手动变焦 |
| | •闪光灯头旋转/倾斜，水平0~360°，<br>垂直-7°~90°(反射闪光) |
| 闪光持续时间 | 1/300秒 - 1/20000秒 |
| • 曝光控制 | |
| 曝光控制系统 | TTL 自动闪光、手动闪光 |
| 闪光曝光补偿(FEC) | 手动，闪光包围曝光：在±3档间以1/3档为增量调节<br>(可以组合使用手动闪光曝光补偿) |
| 同步方式 | 高速同步(最高1/8000秒)，前帘同步，后帘同步 |
| 频闪闪光 | 具备(次数：100次；频率：200Hz) |
| • 无线闪光 | |
| 无线功能 | 主控单元，从属单元，关闭 |
| 可控制从属单元组 | 3组：A, B，C |
| 传输范围(约) | ≤100m |
| 频道 | 32组：1~32 |
| 从属单元准备就绪指示灯 | 两红灯同时亮起 |
| • 电源 | |
| AA型电池 | 镍氢电池(推荐)或LR6类型碱性电池*4节 |
| 回电时间 | 约0.1-2.6秒(松下eneloop镍氢电池)，闪光灯准备就绪，LED红色指示灯亮起 |
| 全功率闪光次数 | 约230次(2500mA镍氢电池) |
| 节能 | 闪光灯在无人操作90秒左右将会自动关闭电源。<br>设置为从属单元时60分钟进入休眠状态。 |
| • 同步触发方式 | 热靴，3.5mm同步线，无线控制插座 |
| • 色温 | 5600±200k |
| • 尺寸 | |
| 体积 | 64*76*190 mm |
| 净重(不含电池) | 410g |

## 故障排除指南

如果遇到问题，请参阅此故障排除指南。

**闪光灯不充电。**

- 电池安装方向错误。
  →以正确的方向安装电池。
- 闪光灯的内置电池耗尽。
  →如果闪光灯LCD屏幕上<▯>显示并闪烁，表明需要更换电池。

**闪光灯不闪光。**

- 闪光灯没有牢固地安装在相机上。
  →将闪光灯的固定座牢固地安装在相机上。
- 闪光灯和相机的电子触点变脏。
  →请清洁触点。

**电源自动关闭。**

- 当灯作为主控单元时，90秒无操作后，自动电源关闭功能生效。
  →半按快门按钮或机身任意按键唤醒。
- 作为从属单元在60分钟(或者选择30分钟)无任何操作时，闪光灯会进入休眠状态。
  →可按机身任意按键唤醒。

**自动变焦不工作。**

- 闪光灯没有牢固地安装在相机上。
  →将闪光灯的固定座牢固地安装在相机上。

**闪光曝光不足或过度。**

- 使用高速同步。
  →使用高速同步，有效的闪光范围会更小。确保被摄体位于显示的有效闪光范围内。
- 闪光灯使用手动曝光模式。
  →改为**TTL**模式或修改闪光输出功率设置。

**相片出现暗角或者被摄物体只有局部能照亮。**

- 相机镜头焦距超出闪光灯的覆盖范围。
  →请检查闪光灯当前的覆盖焦距。本产品的灯头变焦范围是中画幅系统的20-200mm，您可以尝试拉出广角闪光板，以扩大闪光范围。



## 兼容相机列表

本机可兼容以下相机型号：

| | |
|---|---|
| **Olympus:** | E-M10II、E-M5II、E-M1、E-PL8、E-PL7、E-PL6、E-PL5、E-P5、E-P3、PEN-F |
| **Panasonic:** | DMC-GX85、DMC-G7、DMC-GF1、DMC-LX100 DMC-G85、DMC-GH4、DMC-FZ2500GK |

**注:** 1. 此表格仅列举目前已测试的相机型号，未涵盖所有**Olympus/Panasonic**相机。其他相机型号，用户可自行测试。
2. 本公司保留未来修改此表格内容的权利。

## 维护保养

- 闪光灯在工作时，如发现异常，应立即关掉电源，查明原因。
- 灯体应避免震动，平时注意表面除尘。
- 灯体稍有发热为正常现象，无特别需要时，勿连续引闪。
- 闪光灯的所有维修概由本厂指定可供原厂配件之维修部负责。
- 1年保修，消耗品如灯管等，不在1年保修范围。
- 经发现，擅自检修此闪光灯的，将取消闪光灯之一年保修期，维修需要收取相关费用。
- 如果本品出现故障或者被水淋湿，在专业人员维修后方可继续使用。
- 如有技术更改，恕不另行通知。

## Foreword

**Thank you for purchasing this product.**

This TT685O camera flash applies to Olympus/Panasonic series cameras and is compatible with TTL autoflash. With this TTL compatible flash, your shooting will become simpler. You can easily achieve a correct flash exposure even in complex light-changing environments. This camera flash features:

- GN60 (m ISO 100, @200mm). 22 steps from 1/1 to 1/128.
- Fully support Olympus/Panasonic series TTL camera flash. Workable as Master or Slave unit in a wireless flash group.
- Use dot-matrix LCD panel to make clear and convenient operations.
- With built-in 2.4GHz wireless remote system to support transmitting and receiving.
- Provided multiple functions, include HSS (up to 1/8000s), second-curtain sync, FEC, etc.
- Use optional FT-16S to adjust flash parameters & trigger the flash.
- Stable consistency and color temperature with good even lighting.
- Support with firmware upgrade.



## ⚠ Warning

- ⚠ Always keep this product dry. Do not use in rain or in damp conditions.
- ⚠ Do not disassemble. Should repairs become necessary, this product must be sent to an authorized maintenance center.
- ⚠ Keep out of reach of children.
- ⚠ 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.
- ⚠ Do not use the flash unit in the presence of flammable gases, chemicals and other similar materials. In certain circumstance, 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 if the ambient temperature reads over 50℃. Otherwise the electronic parts may be damaged.
- ⚠ Turn off the flash unit immediately in the event of malfunction.

THINKLITE
Electronic Camera Flash

## Thinklite TTL Camera Flash

**Conventions used in this Manual**

- This manual is based on the assumption that both the camera and camera flash's power switches are powered on.
- Reference page numbers are indicated by "p.**".
- The following alert symbols are used in this manual:

⚠ The Caution symbol gives supplemental information.

The Note symbol indicates a warning to prevent shooting problem.



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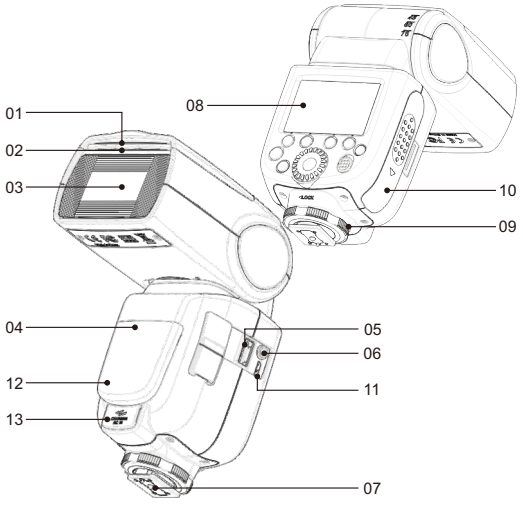
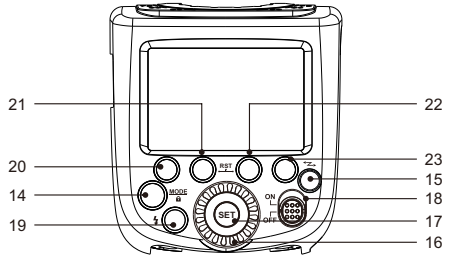
# Name of Parts




## • Body

**01.** Catchlight Panel
**02.** Built-in Wide Panel
**03.** Flash Head
**04.** Optic Control Sensor
**05.** Wireless Control Port
**06.** Sync Cord Jack
**07.** Hotshoe
**08.** Dot-marix LCD Panel
**09.** Lock Ring
**10.** Battery Compartment
**11.** USB Port
**12.** Slave Flash Ready Indicator
**13**. External Power Supply Socket



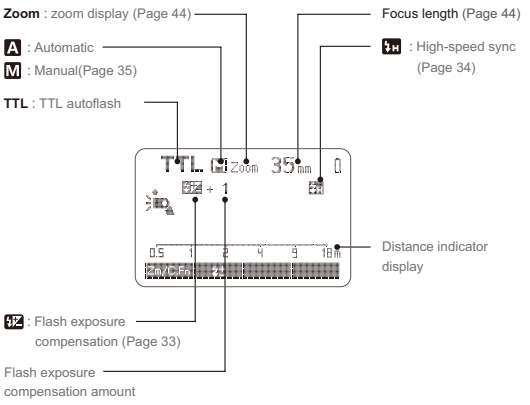

## • Control Panel

**14.** <**MODE**> Mode Selection Button / Lock button
**15.** < > Wireless Selection Button
**16.** Select Dial
**17.** <**SET**> Set Button
**18.** ON/OFF Power Switch
**19.** < > Test Button / Flash Ready Indicator
**20.** Function Button 1
**21.** Function Button 2
**22.** Function Button 3
**23.** Function Button 4



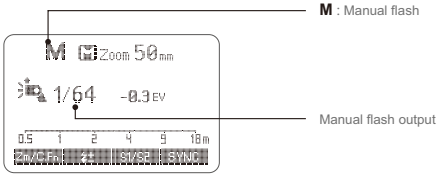
## • LCD Panel

**(1) TTL Autoflash**

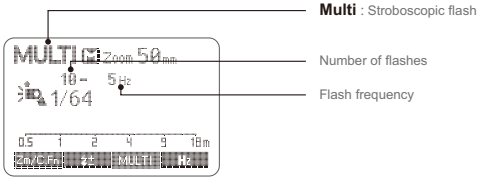



- The display will only show the settings currently applied.
- The functions displayed above function buttons 1 to 4, such as **SYNC** and , change according to settings' status.
- When a button or dial is operated, the LCD panel illuminated.

**(2) M Manual Flash**

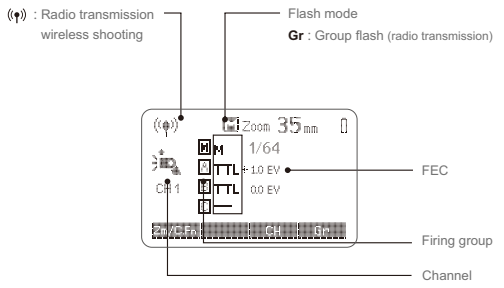



**(3) Multi Stroboscopic Flash**

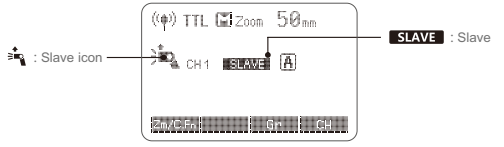


**(4) Radio Transmission Shooting**

**• Master Unit**




**• Slave Unit**




## • What's in the Box of TT685O?

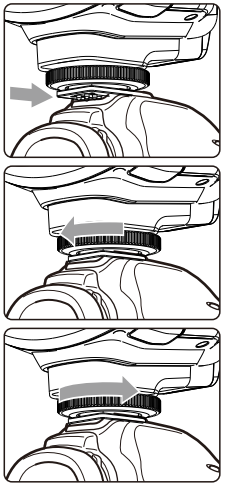
**1.** Flash unit **2.** Mini stand **3.** Protection case **4.** Instruction manual

## • Separately Sold Accessories

The product can be used in combination with the following accessories sold separately, so as to achieve best photography effects:

X1T-O wireless flash trigger, FT-16S power & trigger control, Mini softbox, White & Silver reflector, Honeycomb, Color gels, Snoot, etc.

# 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 lock ring on the mounting foot until it locks up.

3 Detach the Camera Flash.
- Rotate the lock ring on the mounting foot until it is loosened.

# 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. Setting as a master flash, it will turn the power off automatically after a certain period (approx. 90 seconds) of idle use. Pressing the camera shutter halfway or pressing any flash button will wake up the flash unit. Setting as a slave flash, it will enter sleep mode after 60 minutes (adjustable, 30 minutes by default) of idle use. Pressing any flash button will wake it up.

C.Fn Disabling Auto Power Off function is recommended when the flash is used off camera. (C.Fn-APO, Page 45)

C.Fn Slave Auto Power Off Timer is set to 60 minutes by default. Another option "30 minutes" is available. (C.Fn-Sv APOT, Page 45)

# Flash Mode: TTL Autoflash

This flash has three flash modes: TTL, Manual (M), and Multi (Stroboscopic). In TTL mode, the camera and the flash will work together to calculate the correct exposure for the subject and the background. In this mode, multiple TTL functions are available: FEC, HSS, second curtain sync, etc.

* Press <MODE> Mode Selection Button and three flash modes will display on the LCD panel one by one with each pressing.

## TTL Mode

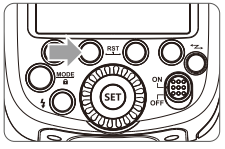
Press <**MODE**> Mode Selection Button to enter TTL mode. The LCD panel will display <**TTL**>.

- Press the camera release button halfway to focus. The aperture and effective flash range will be displayed in the viewfinder.
- When the shutter button is fully pressed, the flash will fire a pre-flash that the camera will use to calculate exposure and flash output the instant before the photo is taken.

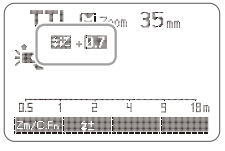
## FEC: Flash Exposure Compensation

With FEC function, this flash can adjust from -3 to +3 in 1/3rd stops. It is useful in situations where minor adjusting of the TTL system is needed based on the environment.

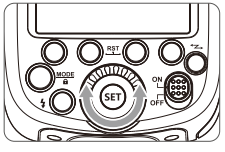
**Setting FEC:**




1 Press Function Button 2 < ϟ± >. The icon < ϟ± > and flash exposure compensation amount will be highlighted on the LCD panel.




2 Set the flash exposure compensation amount.
- Turn the Select Dial to set the amount.
- “0.3”means 1/3 step, “0.7”means 2/3 step.
- To cancel the flash exposure compensation, set the amount to “+0”.




3 Press < **SET** > button again to confirm the setting.

## High-Speed Sync

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.

- Setting the flash to High-speed Sync mode when it is on the camera:

Press the <SYNC> button to turn on high-speed sync flash and < ϟH > is displayed. Then, adjust the camera’s shutter to achieve high-speed sync flash.

- With high-speed sync, the faster the shutter speed, the shorter the effective flash range.
- Multi flash mode cannot be set in high-speed sync mode.
- Over-temperature protection may be activated after 15 consecutive high-speed sync flashes.
- Try not to use high-speed sync flash, for using this function will reduce flash tube’s service life.

**Note:** In the wireless remote control mode, using high-speed sync flash with Panasonic camera may occur out of sync.

## Second-Curtain Sync

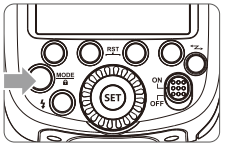
With a slow shutter speed, you can create a light train following the subject. The flash fires right before the shutter closes.

- Setting second-curtain sync:

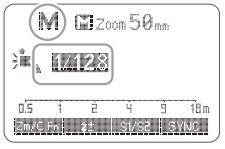
Second-curtain sync function shall be set on the camera’s menu. More details please refer to camera’s instruction menu.

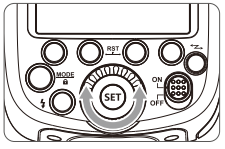
## Flash Mode -- M: Manual Flash

The flash output is adjustable from 1/1 full power to 1/128th power in 1/3rd stop increments. To obtain a correct flash exposure, use a hand-held flash meter to determine the required flash output.



1 Press < **MODE** > button so that < **M** > is displayed.



2 Turn the Select Dial to choose a desired flash output amount.

3 Press < **SET** > button again to confirm the setting.

**Flash Output Range**

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. For example, when you decrease the flash output to 1/2, 1/2-0.3, or 1/2-0.7, and then increase the flash output to more than 1/2, 1/2+0.3, 1/2+0.7, and 1/1 will be displayed.

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 | ..... |
| | 1/2+0.7 | 1/2+0.3 | | 1/4+0.7 | 1/4+0.3 | | ..... |

←Figures displayed when increasing flash output level

**Optical S1 Secondary Unit Setting**

In M manual flash mode, press Function Button 3 < **S1/S2** > button so that this flash can function as an optic S1 secondary flash with optic sensor. With this function, the flash will fire synchronously when the main flash fires, the same effect as that by the use of radio triggers. This helps create multiple lighting effects.

**Optical S2 Secondary Unit Setting**

Press Function Button 3 < **S1/S2** > button so that this flash can also function as an optic S2 secondary flash with optic sensor in M manual flash mode. This is useful when cameras have pre-flash function. 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.

**Manual Off Camera High-speed Setting (Non-Godox wireless X system)**

In M manual flash mode, press Function Button 4< **SYNC** > button to select high-speed mode and **H** is displayed.

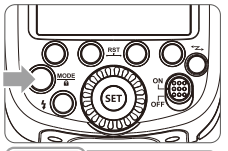
- S1 and S2 optic triggering and off camera high-speed mode are only available in M manual flash mode.



## Flash Mode -- Multi:Stroboscopic Flash

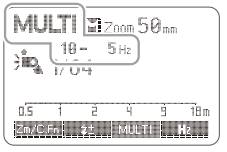
With stroboscopic flash, a rapid series of flashes is fired. It can be used to capture a multiple images of a moving subject in a single photograph.

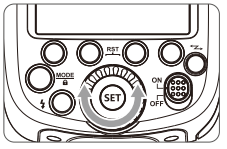
You can set the firing frequency (number of flashes per sec. expressed as Hz), the number of flashes, and the flash output.



1 Press <**MODE**> button so that < **MULTI** > is displayed.

2 Turn the Select Dial to choose a desired flash output.



3 Set the flash frequency and flash times.

- Press Function Button 3 < **MULTI** > to select the flash times. Turn the Select Dial to set the number.
- Press Function Button 4 < **Hz** > to select the flash frequency. Turn the Select Dial to set the number.
- After you finish the setting, press <**SET**> button and all the settings will be displayed.

**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.

⚠ To avoid overheating and deteriorating the flash head, do not use stroboscopic flash more than 10 times in succession. After 10 times, allow the camera flash to rest for at least 15 minutes. If you try to use the stroboscopic flash more than 10 times in succession, the firing might stop automatically to protect the flash head. If this happens, allow at least 15 minutes' rest for the camera flash.

- 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**".
- If the number of flashes is displayed as "--", the firing will continue until the shutter closes or the battery is exhausted. The number of flashes will be limited as shown by the following table.

**Maximum Stroboscopic Flashes:**

| Flash output \ Hz | 1 | 2 | 3 | 4 | 5 | 6-7 | 8-9 | 10 | 11 | 12-14 | 15-19 | 20-50 | 60-200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/4 | 7 | 6 | 5 | 4 | 4 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 |
| 1/8 | 14 | 14 | 12 | 10 | 8 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 |
| 1/16 | 30 | 30 | 30 | 20 | 20 | 20 | 10 | 8 | 8 | 8 | 8 | 8 | 8 |
| 1/32 | 60 | 60 | 60 | 50 | 50 | 40 | 30 | 20 | 20 | 20 | 18 | 16 | 12 |
| 1/64 | 90 | 90 | 90 | 80 | 80 | 70 | 60 | 50 | 40 | 40 | 35 | 30 | 20 |
| 1/128 | 100 | 100 | 100 | 100 | 100 | 90 | 80 | 70 | 70 | 60 | 50 | 40 | 40 |

## Wireless Flash Shooting: Radio (2.4G) Transmission

- You can set up three slave groups for TTL autoflash shooting. With TTL autoflash, you can easily create various lighting effects.
- Any flash settings for the slave units on the master flash in **TTL/Manual/Multi** mode will be automatically sent to the slave units. So the only thing you need to do is to set the master unit for each slave group without any operation for the slave units at all during the shooting.
- This flash can work in **TTL /M /Multi / OFF** flash modes when set as a master unit.

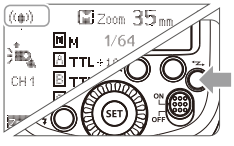
As a slave unit, TT685O is compatible with Godox X1 series transmitter e.g. X1T-C(For Canon), X1T-N(For Nikon), X1T-S(For Sony), X1T-F(For Fuji), X1T-O(For Olympus or Panasonic).

- Even with multiple slave units, the master unit can control all of them via wireless.
- In this user manual, “master unit” refers to the camera flash on a camera and “slave unit” will be controlled by the master unit.

### 1. Wireless Settings

You can switch between normal flash and wireless flash. For normal flash shooting, be sure to set the wireless setting to OFF.

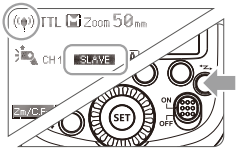
**Master Unit Setting**




1 Press < ⚡ > button so that < ((•)) > is displayed on the LCD panel. If < ((•)) **MULTI**> is displayed, it means Multi mode is ON.

2 The backlight turns green now.

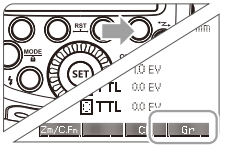
**Slave Unit Setting**

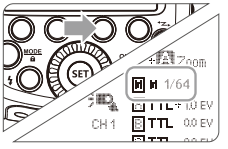



1 Press < ⚡ > button so that < ((•)) > and < **SLAVE** > are displayed on the LCD panel.

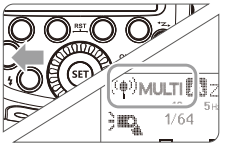
2 The backlight turns orange now.

### 2. Setting Master Unit’s Flash Mode



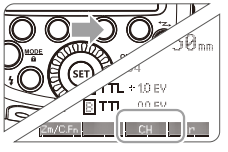

1 Press Function Button 4 < **Gr** > to choose the group from M/A/B/C. Then, press Function Button 3 <**MODE**> so that the master unit can work in **OFF/TTL/M** flash mode. Choose one of them as the flash mode of master unit.

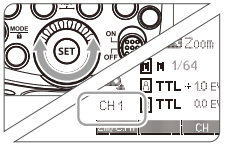



2 Press < MODE > button to switch to Multi mode.

### 3. Setting the Communication Channel

If there are other wireless flash systems nearby, you can change the channel IDs to prevent signal interference. The channel IDs of the master unit and the slave unit(s) must be set to the same.



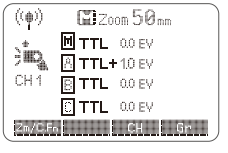




1 Press Function Button 3 < **CH** > and turn the Select Dial to choose a channel ID from 1 to 32.

2 Press the <**SET**> button to confirm.

### 4. TTL: Fully Automatic Wireless Flash Shooting

**Autoflash Shooting with One Slave Unit**




1 **Master Unit Setting**

- Attach a TT685O camera flash on the camera and set it as the master unit. (Page 37)
- **M/A/B/C** can be set as **TTL** mode independently.

**2 Slave Unit Setting**

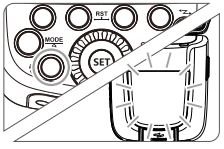
- Set the other camera flash as the wireless slave unit. (Page 38)
- The slave unit can be set as **A/B/C**.

**3 Check the communication channel**

- If the master unit and slave unit(s) are set to a different channel, set them to the same channel. (Page 38)

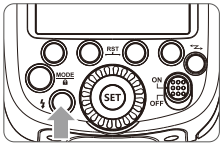
**4 Position the camera and flashes**

- Position the camera and flashes as the picture shows. (Page 41)




**5 Check that the flash is ready**

- Check that the master flash ready indicator is lightened.
- When the slave flash ready indicator is ready, the AF-assist beam lighting area will blinks at 1 second intervals.




**6 Check the flash operation**

- Press the master unit's Test Button< ϟ >.
- Then, the slave unit will fire. If not, check whether the slave unit is put in the right position or not.

⚠ The slave unit might be out of order or fire an unwanted flash due to the nearby fluorescent lamp or computer screen.

- If the slave unit's auto power off function is workable, press the master unit's test button to power it on. Please note that test firing is unavailable during the camera's regular metering time.
- The effective time of slave auto power off is changeable. (C.Fn-Sv APOT/ Page 45)
- By making some settings, the auto AF-assist transmitter will not blink after the slave unit's flash ready indicator is lightened. (C.Fn-AF/ Page 45)



**Using Fully Automatic Wireless Flash**

The FEC and other settings that set on the master unit will also be appeared on the slave unit automatically. The slave unit does not need any operation. Use the following settings to make wireless flashes according to the same methods with normal flash shooting.

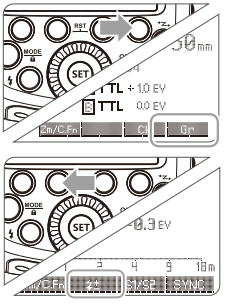
- Flash Exposure Compensation ( ϟ± / Page 33 )

**About Master Unit**

Use two or more master units. By preparing several cameras that with master units flash attached, cameras can be changed in shooting while keeping the same lighting source (slave unit).

## 5. M: Wireless Flash Shooting with Manual Flash

This describes wireless (multiple shooting) using manual flash. You can shoot with a different flash output setting for each slave unit (firing group). Set all parameters on the master unit.




**1 Setting the flash mode to <M>**

- Press Function Button 4 < Gr > to choose groups. Then, press Function Button 3 < **MODE** > to set the flash to M mode.

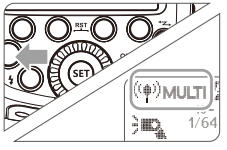
**2 Setting flash output**

- When choosing the state of the group, press Function Button 2 < ϟ± > to set the power output. Turn the Select Dial to set the flash output of the groups. Press the <SET> button to confirm.

**3 Taking the picture**

- Each group fires at the set flash ratio.

## 6. Multi: Manual Wireless Flash Shooting



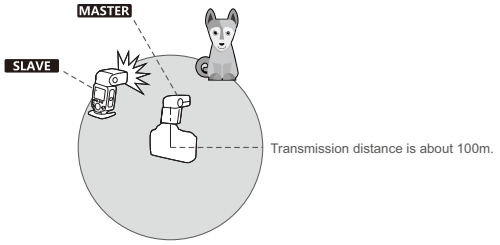

**1 Setting <Multi> stroboscopic flash.**

- Press <**MODE**> button so that < **MULTI**> is displayed.
- Setting the stroboscopic flash.

Using a flash (master/slave) with a radio transmission wireless shooting function make it easy to shoot with advanced wireless multiple flash lighting, in the same way as TTL autoflash shooting. The basic relative position and operation range are as shown in the picture. You can then perform wireless TTL autoflash shooting just by setting the master unit to <**TTL**>.

**Positioning and Operation Range (Example of wireless flash shooting)**

● Autoflash Shooting with One Slave Unit

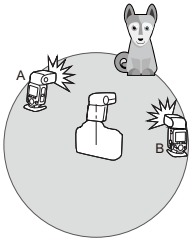



● Use the supplied mini stand to position the slave unit.
● Before shooting, perform a test flash and test shooting.
● The transmission distance might be shorter depending on the conditions such as positioning of slave units, the surrounding environment and whether conditions.

**Wireless Multiple Flash Shooting**

You can divide the slave units into two or three groups and perform TTL autoflash while changing the flash ratio (factor). In addition, you can set and shoot with a different flash mode for each firing group, for up to 5 groups.

● Auto Shooting with Two Slave Groups



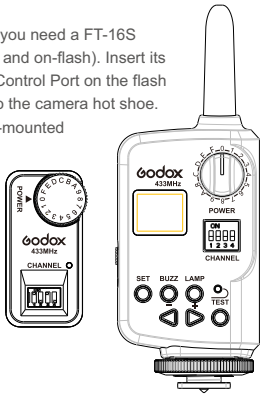

● Auto Shooting with Three Slave Groups

# Other Applications

## Wireless Control Function

The flash unit is built in with a Wireless Control Port so that you can wirelessly adjust the power level of the flash and the flash triggering.

To control the flash wirelessly, you need a FT-16S remote control set (on-camera and on-flash). Insert its receive end into the Wireless Control Port 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.




For full instructions on the use of FT series remote control, see its user manual.

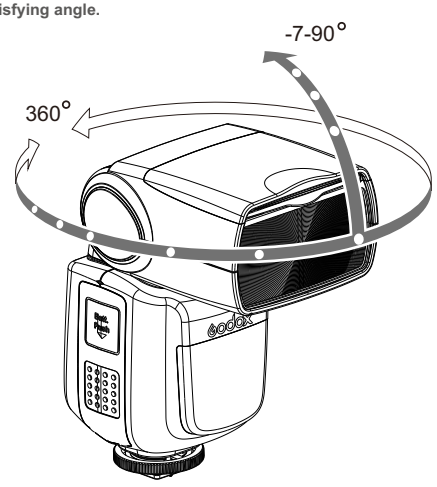
## Sync Triggering

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.

## 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. This is called bounce flash.

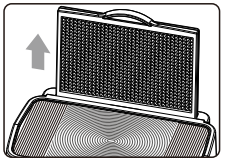
**To set the bounce direction, hold the flash head and turn it to a satisfying angle.**




- If the wall or ceiling is too far away, the bounced flash might be too weak and result in underexposure.
- The wall or the ceiling should be a plain, white color for high reluctance. If the bounce surface is not white, a color cast may appear in the picture.

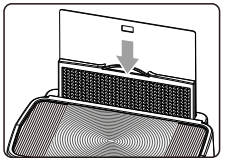
## Creating a Catchlight

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



1 Point the flash head upward by 90°.

2 Pull out the wide panel. The catchlight panel will come out at the same time.



3 Push the wide panel back in.
- Push in only the wide panel.
- Follow the same procedures as for bounce flash.

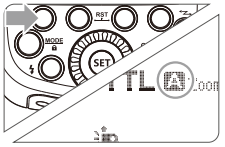
- Point the flash head straight ahead and then upward by 90°. The catchlight will not appear if you swing the flash head left or right.
- For best catchlight effect, stay 1.5m/4.9ft away from the subject.



## ZOOM: Setting the Flash Coverage and Using the Wide Panel

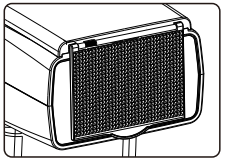
The flash coverage can be set automatically or manually. It can be set to match the lens focal length from 10 mm to 100mm (4/3 system). Also, with the built-in wide panel, the flash coverage can be expanded for 7mm wide-angle lenses.

Choose 4/3 or 135 system in the C.Fn-ZOOM.



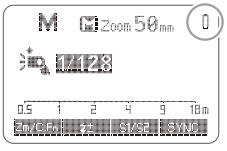

**In Manual Zoom mode, press the <ZOOM/C.FN> button.**
- Turn the Select Dial to change the flash coverage.
- If < A > is displayed, the flash coverage will be set automatically.

If you set the flash coverage manually, make sure it covers the lens focal length so that the picture will not have a dark periphery.



**Using the Wide Panel**

Pull out the wide panel and place it over the flash head as shown. The flash coverage will then be extended to 7 mm.
- The catchlight panel will come out at the same time. Push the catchlight panel back in.
- The **<ZOOM/C.FN>** button will not work.




**Low Battery Warning**

If the battery power is low, < > will appear and blink on the LCD panel. Please replace the battery immediately.

## C.Fn: Setting Custom Functions

The following table lists the available and unavailable custom functions of this flash.

| C.Fn Custom Functions | | | |
|---|---|---|---|
| **Custom Function Signs** | **Function** | **Setting No.** | **Settings & Description** |
| m/ft | Distance indicator | m | m |
| | | ft | feet |
| APO | Auto power off | ON | ON |
| | | OFF | OFF |
| ZOOM | Lens system | 4/3 | 4/3 system |
| | | 135 | 135 system |
| Sv APOT | Slave auto power off timer | 60min | 60min |
| | | 30min | 30min |
| BEEP | Beeper | ON | ON |
| | | OFF | OFF |
| LIGHT | Backlighting time | 12sec | Off in 12 sec. |
| | | OFF | Always off |
| | | ON | Always lighting |
| LCD | LCD contrast ratio | 0~9 | 10 levels |

1. Press <**Zm/C.Fn**> Backlight/Custom Setting Button for 2 seconds or longer until C.Fn menu is displayed. The "Ver x.x" in the top-right corner refers to the software version.
2. Select the Custom Function No.
   - Turn the Select Dial to select the Custom Function.
3. Change the Setting.
   - Press<**SET**> button and the Setting No. blinks.
   - Turn the Select Dial to set the desired number. Pressing <**SET**> button will confirm the settings.
   - After you set the Custom Function and press <MODE> button, the camera will be ready to shoot.
4. In the C.Fn states, long press the "Clear" button for 2 seconds until "OK"is displayed on the panel, which means the values in C.Fn can be reset.

## Firmware Upgrade

This flash supports firmware upgrade through the USB port. Update information will be released on our official website.

USB connection line is not included in this product. The USB port is a standard Micro USB socket. Common USB connection line is applicable.



## Protection Function

### 1. Over-Temperature Protection

- To avoid overheating and deteriorating the flash head, do not fire more than 30 continuous flashes in fast succession at 1/1 full power. After 30 continuous flashes, allow a rest time of at least 10 minutes.
- If you fire more than 30 continuous flashes and then fire more flashes in short intervals, the inner over-temperature protection function may be activated and make the recycling time over 10 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 |
|---|---|
| 1/1 | 30 |
| 1/2 +0.7 | 40 |
| 1/2 +0.3 | 50 |
| 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) | 1000 |
| 1/128(+0.3,+0.7) | |

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

| Power Output | Times |
|---|---|
| 1/1 | 15 |
| 1/2(+0.3,+0.7); | 20 |
| 1/4(+0.3,+0.7) | 30 |
| 1/8(+0.3,+0.7); | |
| 1/16(+0.3,+0.7) | 40 |
| 1/32(+0.3,+0.7); | |
| 1/64(+0.3,+0.7); | 50 |
| 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 |
|---|---|
| E1 | A failure occurs on the recycling system so that the flash cannot fire.<br>Please restart the flash unit. If the problem still exists, please send this product to a maintenance center. |
| E2 | The system gets excessive heat. Please allow a rest time of 10 minutes. |
| E3 | The voltage on two outlets of the flash tube is too high. Please send this product to a maintenance center. |
| E9 | There are some errors occurred during the upgrading process. Please using the correct firmware upgrade method. |

## Technical Data

| | |
|---|---|
| Model | TT685O |
| **• Type** | |
| Compatible Cameras | Olympus/Panasonic cameras<br>(refer to compatible camera models) |
| Guide No.<br>(1/1 output @ 200mm) | 60 (m ISO 100)<br>190 (feet ISO 100) |
| Flash Coverage | 10 to 100mm (4/3 system) or 20 to 200mm (135 system) |
| | • Auto zoom (Flash coverage set automatically to match the lens focal length and image size) |
| | • Manual zoom |
| | • Swinging/tilting flash head (bounce flash): 0 to 360° horizontally and -7° to 90° vertically |
| Flash Duration | 1/300 to 1/20000 seconds |
| **• Exposure Control** | |
| Exposure control system | TTL autoflash and manual flash |
| Flash exposure compensation (FEC) | Manual. FEB: ±3 stops in 1/3 stop increments<br>(Manual FEC can be combined.) |
| Sync mode | High-speed sync (up to 1/8000 seconds),<br>first-curtain sync, and second-curtain sync |
| Multi flash | Provided (up to 100 times, 200Hz) |
| **• Wireless Flash (Optical transmission and 2.4G transmission)** | |
| Wireless flash function | Master, Slave, Off |
| Controllable slave groups | 3 (A, B and C) |
| Transmission range (approx.) | ≤100m |
| Channels | 32 (1~32) |
| Slave-ready indicator | Two red indicators blink |
| **• Power Supply** | |
| AA batteries | Ni-MH batteries (recommended) or 4*LR6 alkaline batteries |
| Recycle time | Approx. 0.1-2.6 seconds (eneloop Ni-MH batteries of Panasonic).<br>Red LED indicator will light up when the flash is ready. |
| Full power flashes | Approx. 230 (2500mA Ni-MH batteries) |
| Power saving | Power off automatically after approx. 90 seconds<br>of idle operation. (60 minutes if set as slave) |
| **• Sync Triggering Mode** | Hotshoe, 3.5mm sync line, Wireless control port |
| **• Color Temperature** | 5600±200k |
| **• Dimensions** | |
| W x H x D | 64*76*190 mm |
| Weight without battery | 410g |

## Troubleshooting

If there is a problem, refer to this Troubleshooting Guide.

**The Camera Flash cannot be charged.**

- The battery is installed in the wrong direction.
  →Install the battery in the correct direction.
- The camera flash's internal battery is exhausted.
  →If < > appears and blinks on the LCD panel, replace the battery immediately.

**The Camera Flash does not fire.**

- The camera flash is not attached securely to the camera.
  →Attach the camera's mounting foot securely to the camera.
- The electrical contacts of the Camera Flash and camera are dirty.
  →Clean the contacts.

**The power turns off by itself.**

- After 90 seconds of idle operation, auto power off took effect if the flash is set as master.
  →Press the shutter button halfway or press any flash button to wake up.
- After 60 minutes (or 30 minutes) of idle operation, the flash unit will enter sleep mode if it is set as slave.
  →Press any flash button to wake up.

**Auto zoom does not work.**

- The camera flash is not attached securely to the camera.
  →Attach the camera flash's mounting foot to the camera.

**The flash exposure is underexposed or overexposed.**

- You used high-speed sync.
  →With high-speed sync, the effective flash range will be shorter. Make sure the subject is within the effective flash range displayed.
- You used Manual Flash mode.
  →Set the flash mode to **TTL** or modify the flash output.

**Photos have dark corners or only parts of the target subject are illuminated.**

- The focal length of lens exceeds the flash coverage.
  →Check the flash coverage you set. This flash unit has the flash coverage between 20 and 200mm, which fits medium-format cameras. Pull the wide panel out to extend the flash coverage.

## Compatible Camera Models

This flash unit can be used on the following camera models:

**Olympus:** E-M10II, E-M5II, E-M1, E-PL8, E-PL7, E-PL6,E-PL5, E-P5, E-P3, PEN-F

**Panasonic:** DMC-GX85, DMC-G7, DMC-GF1, DMC-LX100, DMC-G85, DMC-GH4, DMC-FZ2500GK

- This table only lists the tested camera models, not all Olympus/Panasonic cameras. For the compatibility of other camera models, a self-test is recommended.
- Rights to modify this table are retained.

## 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.

## FCC Warning

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. 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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.