



**THE CONTENDERS**

			
<b>Canon Speedlite EL-100</b> £199/\$200	<b>Canon Speedlite 430EX III-RT</b> £269/\$249	<b>Canon Speedlite 470EX-AI</b> £399/\$279	<b>Canon Speedlite 600EX II-RT</b> £519/\$529
			
<b>Hahnel Modus 600RT Mk II Wireless Kit</b> £299/\$255	<b>Metz Mecablitz 64 AF-1</b> £419/\$450	<b>Nissin i60A</b> £227/\$249	<b>Phottix Juno TTL</b> £169/\$180



# FLASHGUNS SUPER TEST

*A good flashgun can enhance lighting in almost any shooting scenario. Matthew Richards separates the strong Speedlites from the weak...*

**M**any amateurs only reach for a flashgun when shooting indoors or after dark. But that's really missing a trick. A decent flashgun will be much more powerful and versatile than the pop-up flash built into most Canon cameras. They're not only great for adding much-needed illumination when you're shooting in the dark, but also for filling in shadows and giving a more balanced lighting effect (see *Flash With Flowers* on page 8) even under intensely imposing bright sunlight.

Most good flashguns have a zoom facility, which can concentrate the beam over a tighter area when using lenses with longer focal lengths. This increases the effective power and range of the flashgun when using telephoto lenses, as you're not wasting light illuminating areas that won't be in the image frame. Indeed, most feature a motorized head which can automatically track the zoom setting of the lens fitted to the camera, or match different prime lenses as you swap between them.

The power of the flashgun is referenced as a Gn (Guide number, more on page 106). A bigger Gn represents a greater maximum power output, although we run our own lab tests to check the actual output of each flashgun through its range of power settings. Greater power is particularly useful if you want to use the flashgun in bounce and swivel modes, as you'll need a stronger intensity of light to cover the distance.

We test eight of the latest flashguns to see which shines brightest for photography...

# CANON SPEEDLITE EL-100

£199/\$200

Compact yet capable, with some interesting and surprising trick modes up its sleeve

Just about small enough to slip into a pocket, Canon's baby EL-100 is still much more powerful than a pop-up flash. And for full-frame cameras that don't have a pop-up flash, it makes a handy space-saving add-on, weighing in at just 190g.

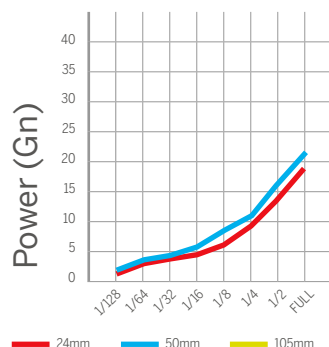
Although compact, the flashgun features a bounce head, with 0-90 degrees of vertical movement, and 150/180 degrees of swivel to the left and right. However, there's no motorized zoom. Instead a rudimentary push-pull manual adjustment gives alternatives to match focal lengths of 24mm or 50mm focal lengths (38mm or 80mm for APS-C). Wireless connectivity includes both master and slave infrared modes, whereas the pricier 470EX-AI only features an IR slave mode. Even so, there's no RF connectivity.

Onboard controls are a bit too simple, only really catering to channel and group assignments for wireless modes, and there's no LCD

screen. You need to make all adjustments via in-camera menus, which can be long-winded. On the plus side, high-speed sync and rear-curtain sync are supported.

### Performance

As indicated by the modest G<sub>n</sub> rating, maximum power output is a little down on other flashguns in this test group. Considering that the EL-100 only runs on two AA batteries, recycling is pretty swift, at three seconds after a full-power flash when using NiMH batteries (5.2 seconds for alkaline). TTL flash metering is spot-on.



### FEATURES

- 01 The head is quite small but has tilt and swivel movement.
- 02 There's no wide-angle diffuser screen, nor a pull-out reflector card.
- 03 Basic controls are only of use for assigning wireless channels and groups.
- 04 The rotary control dial includes full 'Auto' and more adjustment-friendly 'On' positions.
- 05 The build includes a metal mounting foot and quick-release locking lever.

### VERDICT

<b>FEATURES</b>	★★★★☆
<b>BUILD &amp; HANDLING</b>	★★★★☆
<b>IMAGE QUALITY</b>	★★★★☆
<b>VALUE</b>	★★★★☆
<b>OVERALL</b>	★★★★☆

## HOW WE TEST

Our two-stage procedure combines extensive real-world shooting with rigorous lab tests

**W**e test all features for each flashgun. These can include flash exposure comp and manual power settings, motorized zoom heads and advanced flash modes like high-speed sync, rear curtain and, sometimes, strobe flash. To test power output, we used a Sekonic flash meter placed one metre away from each flashgun. We check the complete range of manual power settings, in one-stop increments.

The results are checked by taking shots with the appropriate lens apertures and using the camera's histogram display in playback mode. This is done for flash zoom settings of 24mm, 50mm and 105mm (in full-frame terms). We also check the accuracy and consistency of E-TTL (Electronic-Through The Lens) flash metering (see opposite), and the speed with which each flashgun can recycle to a state of readiness after a full-power flash, using both Ni-MH and alkaline cells.



# CANON SPEEDLITE 430EX III-RT £269/\$249

Mid-range but feature-rich, complete with a built-in wireless RF transceiver

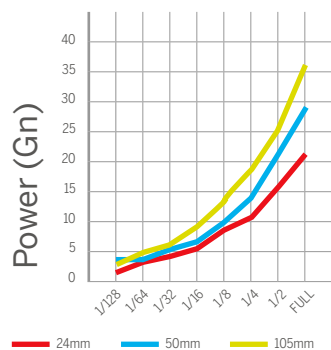
The mid-range 430EX II was a top-seller, packing powerful performance into a compact yet robust build, all at an attractive price. The headline upgrade in the more recent III-RT is that, like Canon's range-topping 600 RT series of Speedlites, it adds a built-in RF (Radio Frequency) transceiver. So whereas the previous model could only act as a wireless slave with an infrared range of around five to eight metres, the new model can act as an RF master or slave with a transmission range of about 30 metres in master mode. That's when using it in the camera's hotshoe to trigger other 'RT' compatible flashguns.

Another improvement over the previous edition is that the control panel and menu system are redesigned. They're much more user-friendly and intuitive, for quicker and easier operation. Similarities to the Mk II include a motorized 24-105mm zoom head, with 0-90 degree bounce and 150/180 degrees

of swivel to the left and right. The accessories include the usual carrying pouch and stand, but adds a high-quality diffusion dome and tungsten colour-matching filter.

## Performance

We're used to seeing excellent TTL accuracy with own-brand Canon Speedlites and the 430EX III-RT is no exception. With four batteries instead of two, recycling speed is better than from the EL-100, despite the greater max power rating. Even so, our measured max output at the long end of the zoom range is a little down on most other flashguns on test.



## FEATURES

- 01 The usual catchlight panel and wide-angle diffuser are built into the flash head.
- 02 This Speedlite features a motorized zoom mechanism.
- 03 The flashgun can detect when the diffusion dome or colour filter is fitted.
- 04 The redesigned rear control panel is a joy.
- 05 With a built-in RF transceiver, it can operate as a master or slave with other compatible 'RT' flashguns.

## VERDICT

**FEATURES**  
★★★★★

**BUILD & HANDLING**  
★★★★★

**IMAGE QUALITY**  
★★★★★

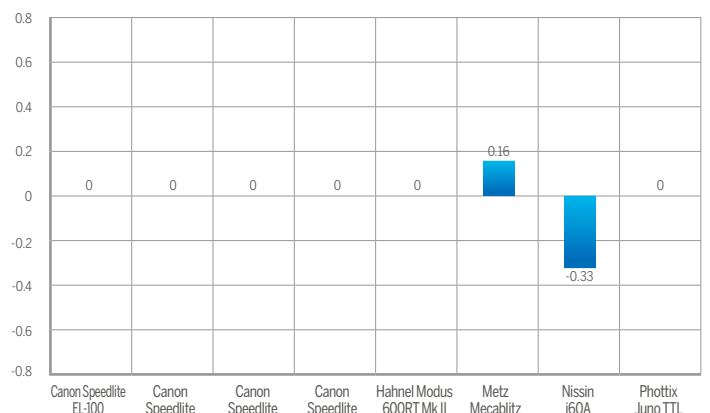
**VALUE**  
★★★★★

**OVERALL**  
★★★★★

# TTL ACCURACY

How accurate are flashguns during TTL metering?

TTL (Through The Lens) flash metering is available with almost all dedicated flashguns that are designed for use with the Canon EOS camera system. Before the actual exposure, the flashgun fires short pulses of light that are reflected back from the subject, pass through the lens and are measured by the camera. The system then calculates the duration of flash required for a 'correct' exposure and sends this back to the flashgun. This chart shows how accurately TTL flash metering works when using each of the flashguns. Positive values equate to overexposure, negative for underexposure.



Results closest to zero indicate the greatest accuracy in TTL flash metering



# CANON SPEEDLITE 470EX-AI

£399/\$279

A unique flashgun with artificial intelligence to help you play all the angles with no problems

**B**ounce flash is generally preferable to direct, so long as you're confident about how to work the angles. If not, this flashgun comes to the rescue, with a motorized bounce, swivel and zoom head that are controlled via AI. But how does it work?

In fully auto AI Bounce mode, a pre-flash pulse is fired at the subject, then the head tilts vertically upwards and fires a second pre-flash pulse at the ceiling. The optimum bounce angle is then calculated and set automatically, prior to the shot. If you swap between portrait and landscape orientation, the flash head adjusts with a double light tap of the camera's shutter button.

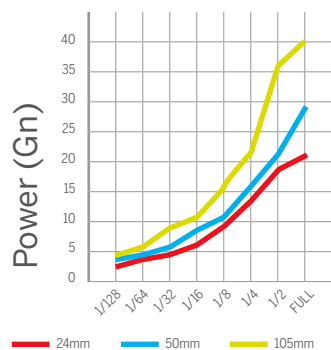
It's all clever, but fully auto mode is only available with recent cameras, launched during or after the second half of 2014. Even then, some newer models are excluded, including the 1300D, M3, M5 and M6. If you'd rather choose whether to bounce the flash off the ceiling or a wall, there's

a semi-auto AI Bounce mode and an 'Angle Set' button to accommodate this, which has more compatibility.

In other respects, the 470EX-AI is conventional, although the recently designed control panel is very similar to that of the 430EX III-RT.

## Performance

Max output at the longest zoom setting is midway between that of the 430EX III-RT and 600EX II-RT. Recycling after a flash is both silent and swift, but battery life is about two-thirds that of the 430EX II-RT, due to the extra motorization.



## FEATURES

- 01** The head has 120 degrees of vertical rotation, and 180 degrees swivel.
- 02** The three-way 'AI.B' switch offers 0 degrees (no bounce or swivel), semi-auto and fully auto modes.
- 03** In semi-auto AI Bounce mode, you manually position the head then press the Angle Set button.
- 04** Includes a wide-angle diffuser.
- 05** A diffusion dome, stand and padded soft case are included.

## VERDICT

- FEATURES** ★★★★★
- BUILD & HANDLING** ★★★★★
- IMAGE QUALITY** ★★★★★
- VALUE** ★★★★★
- OVERALL** ★★★★★



## GUIDE NUMBER

How powerful are flashguns? These numbers will be your guide...

**T**he maximum power output of a flashgun is generally quoted as a Gn (Guide number). It equates to the distance at which the flashgun can effectively illuminate a subject, at any given aperture, usually with a camera sensitivity setting of ISO100. If you divide the Gn by the f-number of the aperture in use, you'll get the effective reach of the flashgun. For example, a flashgun with a Gn 40 rating (ISO100) will

give you a range of 10m when shooting at f/4, or 5m when shooting at f/8.

Bear in mind that if you're bouncing the flash off a ceiling or wall, the distance between the flashgun and the object you're shooting can become much longer, and there will also be a loss of intensity due to absorption of light in the surface that you're bouncing it off. Similarly, diffusion domes will also reduce the max available output.

# CANON SPEEDLITE 600EX II-RT £519/\$529

There's no shortage of power but the control panel feels a little dated

**T**he 600EX II-RT is bigger, tougher and more powerful than any of Canon's other Speedlites. It has a weather-sealed construction, complete with a weather-sealed mounting foot, and is designed from top to toe to meet the expectations of pro photographers.

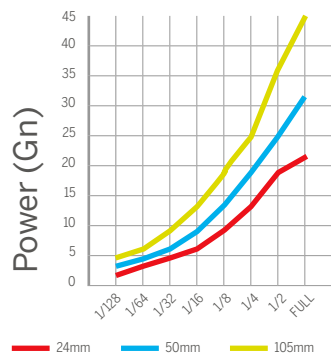
Compared with the 430EX III-RT, there's a more powerful Gn 60 rating and more flexibility in the bounce range. Upward tilt extends from -7 degrees to a fully upright 90 degrees, but that's still less than the 120 degrees of the 470EX-AI, while both of these flashguns enable a full 180 degrees of lateral swivel in both left and right directions.

As with the 430EX III-RT, the 600EX II-RT has built-in wireless RF connectivity for working in both master and slave modes, over a range of up to 30m. As usual, RF linking gives the bonus of being able to work around corners and through obstacles, as well as being more reliable than infrared in bright,

outdoor conditions. Unlike the 430EX III-RT, however, the more up-market flashgun features master as well as slave mode during infrared linking.

### Performance

Compared with Canon's mid-range flashguns, there's little or no power boost at short to medium zoom settings, but the power ramps up at the longer end of the zoom range. Recycling speed is almost a second slower after a full-power flash, when using NiMH batteries, but that's to be expected considering the greater output power.



### FEATURES

- 01 The 20-200mm zoom range matches that of the Hahnel and Phottix flashguns.
- 02 There are extra sockets for a PC sync terminal and an external power pack.
- 03 Wireless master and slave modes are included with RF and infrared linking.
- 04 Build-quality includes weather-seals and a shrouded hotshoe-mounting foot.
- 05 The context-sensitive control buttons are quite traditional.

### VERDICT

- FEATURES ★★★★★
- BUILD & HANDLING ★★★★★
- IMAGE QUALITY ★★★★★
- VALUE ★★★★★
- OVERALL ★★★★★

## TILT AND SWIVEL

Bounce the light to create a softer effect

**A** so-called 'softer' quality of light is typically preferred for portraiture. For this, you'll need a relatively large light source, certainly much larger than a flashgun. The easiest solution is to bounce the flash off a white wall or ceiling, which effectively gives a much larger area of source illumination. Indeed, the artificially intelligent Canon 470EX-AI automatically works out the optimum bounce angle.

You can tilt the head of the flashgun upwards for bouncing light off the ceiling, or swivel it sideways for bouncing light off a wall. Naturally, if you're shooting in 'portrait' or upright orientation, the functions are reversed compared with 'landscape' orientation. Many flashguns feature a reflector card which pulls out from just above the flash tube, enabling some light to be thrown directly forward in bounce mode. This can add a little direct illumination.





# HAHNEL MODUS 600RT MK II WIRELESS

£299/\$255



New and improved, the Mark II edition of the Modus 600RT is even more appealing

**P**acked with high-end features and a built-in RF transceiver, the Modus 600RT boasts RF and infrared master and slave connectivity, along with a top Gn 60 max power rating. On its own, the flashgun is great at £249/\$255, and the 'Wireless Kit' is better at £299/\$329, as it includes a hotshoe-mounting Hahnel Viper RF trigger with a 100m range. Best of all, there's a 'Pro Kit', which includes two flashguns plus the same hotshoe trigger at £499/\$559.

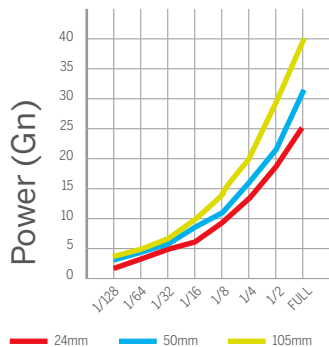
A big difference between the Hahnel and the other flashguns here is that it's powered by a rechargeable Li-ion battery pack. It has greater stamina, enabling up to 600 full-power flashes and 1000 at the half-power setting. Recycling speeds are twice as fast as most flashguns that use AA batteries, at 1.5 seconds after a full-power flash and just 0.7 seconds after half-power.

In other areas of its feature set, the Hahnel goes toe to toe with competing top-end flashguns. It has a motorized

zoom head with a 20-200mm range, a flip-down 14mm wide-angle diffuser and a pull-out reflector card. Mark II improvements include a quick-release hotshoe locking lever and a new battery charger with a USB socket.

### Performance

Performance is impressive in all areas, from powerful max output to super-fast recycling and reliable TTL metering. RF triggering never misses a beat and you can link other makes of flashgun to an RF group with extra Viper receivers, costing around £69/\$79 each.



### FEATURES

- 01** There's a 20-200mm motorized zoom range, 14mm wide-angle diffuser and reflector card.
- 02** Control buttons are similar to those of other flashguns.
- 03** An extra Hahnel HLX-MD1 Extreme Li-ion battery costs around £49/\$89.
- 04** There's a USB port at the side for firmware upgrades.
- 05** RF master/slave transmission has a range of 15m and 100m.

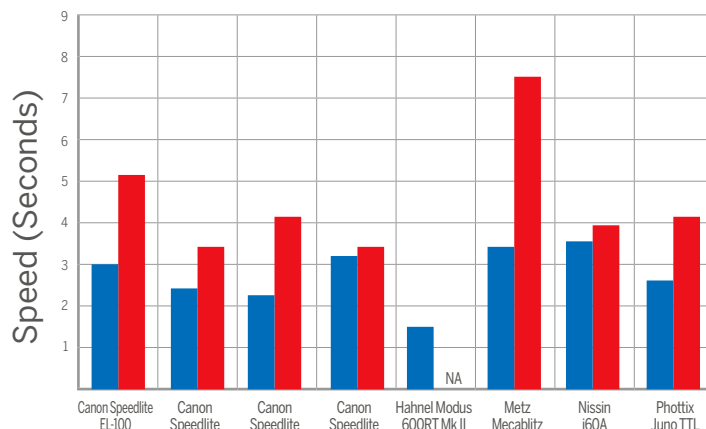
### VERDICT

- FEATURES** ★★★★★
- BUILD & HANDLING** ★★★★★
- IMAGE QUALITY** ★★★★★
- VALUE** ★★★★★
- OVERALL** ★★★★★

## RECYCLE SPEED

Don't be kept waiting when on a shoot...

**A**t low-power settings, most flashguns will recycle almost instantly. This means that you can fire shot after shot when trying to capture fleeting expressions or a small moment in a sequence of events, without worrying about your flashgun being ready. As you approach the max power setting, recycling will take longer and you might need to wait for a few seconds between shots. Here's how long each will keep you waiting, when using fresh NiMH or alkaline batteries.



Here's how long it takes each flashgun to recycle after a full-power flash – lower scores are better...

■ NiMH  
■ Alkaline

# METZ MECABLITZ 64 AF-1

£419/\$450

Here's the range-topping flashgun from the prestigious Metz brand

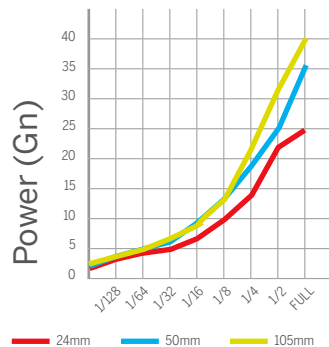
This up-market flashgun from the German manufacturer, Metz, matches the top-flight Canon and Hahnel models in many areas, including a 24-200mm zoom range and -9 to 90-degree bounce facility. On paper, at least, it has an even greater max power rating but, while it can operate in master and slave wireless configs via infrared linking, it lacks a built-in RF transceiver.

The 64 AF-1 is the only flashgun in the group to feature an additional sub-flash module. It's great for adding an adjustable amount of fill-in lighting when the main head is being used in bounce or swivel mode. Another unique feature in present company is the colour touchscreen around back, which makes for easy point-and-pick navigation of menus and adjustments.

Typical top-end extras include a programmable stroboscopic flash mode and a socket for powering the flashgun from an optional external power pack.

## Performance

Things didn't turn out quite as expected in our lab tests. We were hoping for a lot, considering the Gn 64 power rating. However, while the Metz delivered a greater intensity of output than the Canon 600EX II-RT at short to medium zoom settings, it dropped off more at the long end between 105-200mm. Recycling after a full-power flash is a little slower than from the top-end Canon, and takes more than twice as long as with the Hahnel. Running on alkaline rather than NiMH batteries, the Metz is particularly slow.



## FEATURES

- 01 There's a 24-200mm zoom range and -9 to 90-degree bounce facility.
- 02 Full 180-degree swivel is available to the left but only 120 degrees to the right.
- 03 The Metz adds a secondary sub-flash tube to the build.
- 04 Has a pleasant colour touchscreen at the back.
- 05 Build quality feels fully pro-grade, but it does lack a weather-sealed mounting foot.

## VERDICT

- FEATURES ★★★★★
- BUILD & HANDLING ★★★★★
- IMAGE QUALITY ★★★★★
- VALUE ★★★★★
- OVERALL ★★★★★

# HIGH-SPEED SYNC

Can a relatively tiny flashgun compete with the sun?

A flashgun can be useful for filling in shadows. The only problem is that the shutter speed you need for a good exposure may exceed the flash sync speed of the camera. This is the max speed the shutter can fire when using the flashgun in regular mode, typically around 1/200th to 1/250th of a sec. The limitation is caused by the fact the flash needs to

occur after the shutter's first curtain has opened, and before the second curtain begins to close. Or else you'll end up with a dark bar at the top or bottom of the frame. At very high shutter speeds, the second curtain begins to close before the first is open, as they follow each other across the frame. To get around this, flashguns can feature a high-speed sync mode.



Less maximum power is available in high-speed sync mode but it's great for filling in shadows on a sunny day



# NISSIN I60A £227/\$249

Something of a small wonder, the Nissin punches well above its weight

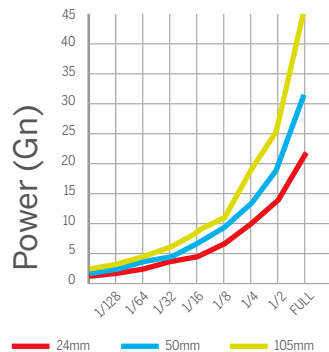
There are quite a few small, lightweight flashguns on the market that look equally at home on mirrorless cameras as they do on SLRs. But most only have a meagre maximum power output and simple controls. They might also lack an LCD screen. This Nissin proves that you can pack a lot into a small build, with its ace Gn 60 rating, 24-200mm motorized zoom head and a graphical user interface based around a colour screen.

The bounce facility has 0-90-degree tilt and a full 180-degree swivel in left and right. Despite its small build, the Nissin also manages an LED light. It's nowhere near as powerful as the secondary flash module in the Metz, but is suited to close-up shooting.

Infrared and RF wireless slave triggering are available, the latter working well with Nissin's Commander Air 1 or more up-market Commander Air 10s RF triggers. You can buy these for around £75/\$89 or £135/\$170.

## Performance

In our tests, the little Nissin matched the maximum power output of the top-ranking Canon 600EX II-RT throughout the entire zoom range. That makes it jointly the most powerful flashgun in the whole group. We experienced a slight and fairly consistent amount of underexposure during TTL flash shooting, equating to about a third of an f-stop. Recycling speed is just a tenth of a second slower than in the Metz flashgun after a full power flash, using NiMH batteries, but nearly twice as fast on alkaline cells.



## FEATURES

- 01 For such a small flashgun, it has a large 24-200mm motorized zoom.
- 02 It's the only flashgun in the test to feature an extra LED lamp.
- 03 Well-built, the Nissin feels solid and sturdy despite its relatively light weight.
- 04 RF and infrared slave modes are available, as well as a basic optical slave option.
- 05 Stylish and intuitive, the rear panel features a graphical colour interface.

## VERDICT

**FEATURES**  
★★★★☆

**BUILD & HANDLING**  
★★★★☆

**IMAGE QUALITY**  
★★★★☆

**VALUE**  
★★★★☆

**OVERALL**  
★★★★☆

# OFF-CAMERA FLASH

Get a more three-dimensional lighting effect

When your flashgun is mounted in a hotshoe and firing directly at a subject, it can end up with flat lighting. To create images with a more natural look, off-camera flash is a better choice. Many Canons feature a pop-up flash that can act as a wireless master, triggering other remote flashguns that have a wireless infrared slave mode. Remote flashguns configured in up to three separate groups can be triggered via an infrared beam, complete with the availability of TTL flash metering.

RF (Radio Frequency) remote triggering enables a much greater working distance, and you won't need uninterrupted 'line of sight' between the trigger and remote flashguns.



Canon's ST-E3-RT RF trigger is pricey at £239/\$285 but the directly equivalent Yongnuo YN-E3-RT II shown here is more affordable at around £86/\$81

# PHOTTIX JUNO TTL

£169/\$180



With a feast of features for a flashgun at this price, the Phottix is a bargain buy

The new Phottix Juno TTL is the cheapest flashgun in this test group, but you'd never guess that by looking at the specs, features and quality. It has a potent Gn 60 max output, a bounce head with -7 to 90 degrees of tilt and full 180-degree swivel in both directions, plus a 20-200mm motorized zoom head. The construction feels tough and solid, and features a rubber weather-seal around the metal mounting plate.

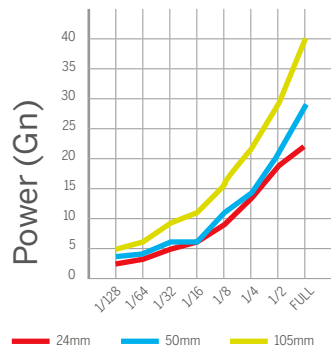
As its name suggests, TTL flash metering is supported, while advanced modes include high-speed sync, rear curtain and programmable stroboscopic flash. Things get even more interesting when you use the Phottix off-camera. As well as an infrared slave mode, it features a radio frequency transceiver for full wireless RF master and slave functions.

Triggering works well with the Odin II transmitter (£125/\$171), which enables full remote control of flashgun settings over a range of up to

100m, as well as multiple modes including high-speed sync. Moreover, if you happen to use multiple makes of camera, you can buy dedicated triggers for each of them, and the flashgun adapts to give a full range of TTL and other flash modes when used off-camera, via the trigger.

### Performance

The Phottix gives powerful output over its large zoom range with fast recycling speeds, even after a full-power flash. This works out to 2.6 or 4.1 seconds for NiMH and alkaline batteries. TTL accuracy proved reliable.



### FEATURES

- 01 The large and powerful head includes 20-200mm motorized zoom, a wide-angle diffuser and reflector card.
- 02 There's full 180-degree swivel.
- 03 An RF transceiver is built-in, along with an infrared slave facility.
- 04 The interface is based on context-sensitive pushbuttons.
- 05 The mounting shoe has a rubber weather-seal and quick-release lever.

### VERDICT

- FEATURES ★★★★★
- BUILD & HANDLING ★★★★★
- IMAGE QUALITY ★★★★★
- VALUE ★★★★★
- OVERALL ★★★★★

## REAR-CURTAIN & MULTI FLASH

Add versatility with trick flash modes for special effects

Most flashguns have a rear-curtain mode, which can be selected via its onboard controls, or from the flash function menu in the host camera. Whereas the first-curtain mode fires the flash as soon as the first shutter has opened, the rear-curtain mode waits until the rear curtain is about to close. It's useful in long exposures when, for example, a

vehicle with lights is moving across the scene. Light trails will appear to stretch out from behind, instead of in front.









Some flashguns also feature a 'Multi' mode, also known as 'repeat' or 'stroboscopic'. This is programmable, so you can preset the number of flashes and the time interval between each one. It's great for getting multiple exposures of an object in motion in a single shot.



With rear-curtain flash mode, the lights of a vehicle crossing the scene appear to stretch out behind rather than in front of its path



## COMPARISON TABLE

								
	CANON SPEEDLITE EL-100	CANON SPEEDLITE 430EX III-RT	CANON SPEEDLITE 470EX-AI	CANON SPEEDLITE 600EX II-RT	HAHNEL MODUS 600RT MK II WK	METZ MECABLITZ 64 AF-1	NISSIN I60A	PHOTTIX JUNO TTL
	www.canon.co.uk	www.canon.co.uk	www.canon.co.uk	www.canon.co.uk	www.hahnel.ie	www.metzflash.co.uk	www.nissindigital.com	www.theflashcentre.com
<b>Max claimed Gn (ISO 100, metres)</b>	Gn 26	Gn 43	Gn 47	Gn 60	Gn 60	Gn 64	Gn 60	Gn 60
<b>Bounce (degrees)</b>	0 to 90 degrees	0 to 90 degrees	0 to 120 degrees	-7 to 90 degrees	-7 to 90 degrees	-9 to 90 degrees	0 to 90 degrees	-7 to 90 degrees
<b>Swivel (left/right)</b>	150 / 180	150 / 180	180 / 180	180 / 180	180 / 180	180 / 120	180 / 180	180 / 180
<b>Zoom Range</b>	24-50mm (manual)	24-105mm (auto)	24-105mm (auto)	20-200mm (auto)	20-200mm (auto)	24-200mm (auto)	24-200mm (auto)	20-200mm
<b>Wide-angle Diffuser</b>	No	14mm	14mm	14mm	14mm	12mm	16mm	14mm
<b>Reflector card</b>	No	Yes	No	Yes	Yes	Yes	Yes	Yes
<b>Auto Metering</b>	E-TTL / E-TTL II	E-TTL / E-TTL II	E-TTL / E-TTL II	E-TTL / E-TTL II	E-TTL / E-TTL II	E-TTL / E-TTL II	E-TTL / E-TTL II	E-TTL / E-TTL II
<b>Flash Exposure Compensation</b>	Via camera menu	+/-3EV	+/-3EV	+/-3EV	+/-3EV	+/-3EV	+/-2EV	+/-3EV
<b>Manual Power Settings</b>	1/1 to 1/128	1/1 to 1/128	1/1 to 1/128	1/1 to 1/128	1/1 to 1/128	1/1 to 1/256	1/1 to 1/256	1/1 to 1/128
<b>AF-assist beam</b>	Red lamp	Red lamp	Red lamp	Red lamp	Red lamp	Red lamp	Red lamp	Red lamp
<b>Secondary lamp</b>	No	No	No	No	No	Sub-flash	LED	No
<b>Wireless Master/Slave</b>	Master/Slave IR	Slave IR/RF	Slave IR	Master/Slave IR	Master/Slave IR	Master/Slave IR	Slave IR (optional RF)	IR slave, RF Master/Slave
<b>Additional Flash Modes</b>	HSS, RC, Strobe	HSS, RC	HSS, RC	HSS, RC, Strobe	HSS, RC, Strobe	HSS, RC, Strobe	HSS, RC	HSS, RC, Strobe
<b>TTL flash exp error</b>	0EV	0EV	0EV	0EV	0EV	-0.33EV	-0.33EV	0EV
<b>Full Power Recycle (NiMH/alkaline)</b>	3.0/5.2 seconds	2.4/3.4 seconds	2.3/4.2 seconds	3.2/3.4 seconds	1.5 seconds	3.4/7.4 seconds	3.5/3.9 seconds	2.6/4.1 seconds
<b>Flash Info LCD</b>	No	Yes	Yes	Yes	Yes	Yes (colour touchscreen)	Yes (colour)	Yes
<b>Supplied accessories</b>	Pouch, stand	Pouch, stand, dome, filter	Pouch, stand, dome	Pouch, stand, dome, filter	Pouch, stand, charger	Pouch, stand	Pouch, stand, dome	Pouch, stand
<b>Batteries</b>	2x AA	4x AA	4x AA	4x AA	1x Li-ion	4x AA	4x AA	4x AA
<b>Dimensions (W x H x D)</b>	65x92x71mm	71x114x98mm	75x130x105mm	79x143x123mm	64x76x190mm	78x148x112mm	73x112x98mm	50x190x80mm
<b>Weight (excl batts)</b>	190g	295g	385g	435g	430g	422g	300g	460g
<b>Target price</b>	£199/\$200	£269/\$249	£399/\$279	£519/\$529	£299/\$255	£419/\$450	£227/\$249	£169/\$180
<b>FEATURES</b>	★★★★☆	★★★★★	★★★★☆	★★★★★	★★★★★	★★★★☆	★★★★☆	★★★★☆
<b>BUILD &amp; HANDLING</b>	★★★★☆	★★★★★	★★★★☆	★★★★★	★★★★★	★★★★☆	★★★★☆	★★★★★
<b>PERFORMANCE</b>	★★★★☆	★★★★★	★★★★☆	★★★★★	★★★★★	★★★★☆	★★★★☆	★★★★★
<b>VALUE</b>	★★★★☆	★★★★★	★★★★☆	★★★★★	★★★★★	★★★★☆	★★★★☆	★★★★★
<b>OVERALL</b>	★★★★☆	★★★★★	★★★★☆	★★★★★	★★★★★	★★★★☆	★★★★☆	★★★★★

## THE WINNER IS... HAHNEL MODUS 600RT MK II WIRELESS

The Hahnel is our top gun, due to its performance and versatility

**D**espite its 'mid-range' price, the Hahnel is a topflashgun with pro-grade handling and features. The 'Wireless Kit' comes with a Canon-dedicated RF trigger for slotting into your hotshoe to enable easy off-camera flash. And finally, its Li-ion power pack enables great stamina and fast recycling speeds.

The high-end Phottix Juno TTL is another great bargain. Add a companion Phottix Odin II radio trigger and it costs about the same as the

Hahnel kit, albeit without the Li-ion battery pack. The Nissin i60A is the best buy if you want a compact flashgun that doesn't compromise on power or handling. The Metz 64 AF-1 is a smart buy if you need a secondary flash tube.

Of Canon's current flashguns, the 430EX III-RT is our favourite for performance, features and price. The EL-100 lacks controls and power, whereas the 470EX-AI is pricey if you don't feel the need for its automated bounce facility. 📷

