

Cheat Sheet for Sigma EF-500 DG Super

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June 19, 2008

Note: This cheat sheet doesn't cover things that are obvious or easy to figure out.

Symbols

Symbol	Meaning
(E)TTL blinking	Exposure OK ¹
▶	2nd-curtain sync ²
FP	High-speed sync ^{3,4}
ETTL $\frac{1}{2}$ $\frac{1}{2}$	Wireless ETTL controller
ETTL $\frac{1}{2}$ $\frac{1}{2}$ /SL	Wireless ETTL controllee ("slave")
$\frac{1}{2}$ $\frac{1}{2}$ /SL	Manual wireless controller or controllee
⊗	Controller controls but doesn't fire ^{5,6}
$\frac{1}{2}$ +/-	Flash exposure compensation enabled
Fb	Flash exposure bracketing enabled ^{7,8}

Shooting Limits

After the following numbers of continuous shots, wait 10 minutes for cooling:

Mode	Max Flashes
(E)TTL, M(1/1, 1/2)	15
M(1/4, 1/8)	20
M(1/16-1/128)	40
Multi	10 cycles

Enabling Flash Features

Feature	Enable by
FEC ⁹	SEL [(E)TTL only], then +/-
Bracketing	SEL to Fb [(E)TTL only], then +/-
Normal multi flash	MODE to MULTI, then SEL and +/- to set power, rate, # flashes.
Wireless multi flash	In ETTL $\frac{1}{2}$ $\frac{1}{2}$ hold SEL for 2 seconds, then use MODE to select and press SEL again
Wireless manual flash	In ETTL $\frac{1}{2}$ $\frac{1}{2}$ hold SEL for 2 seconds, then use MODE to select and press SEL again
2nd-curtain sync	Push + without first pushing SEL
High-speed sync	Push + twice without first pushing SEL
On-camera flash controls but doesn't fire	In ETTL $\frac{1}{2}$ $\frac{1}{2}$ push + without pushing SEL

¹When my Canon 30D is in P or Auto mode, I always get "Exposure OK" even when the exposure is obviously bad. My Canon G3 works correctly in all modes.

²Second-curtain sync is controlled only on the flash. The camera's setting has no effect.

³On at least the Canon 30D, choosing high-speed sync in Av mode sometimes sets the shutter speed to 1/8000 even in relatively low light. HSS works correctly in the other modes.

⁴In Av and M modes, the camera's shutter speed will not go above 1/250 until high-speed sync has been chosen. High-speed sync is lost the shutter button is pressed or half-pressed while a shutter speed of 1/250 or below is selected. This behavior is especially dangerous in Av mode.

⁵Some light from the controller may appear in the final image.

⁶When the controlling flash is disabled, choosing ratios may cause the controlled flashes to misfire. This seems to be an intermittent behavior.

⁷After "Fb", the digits 1-3 will appear to indicate which shot in the sequence is to be taken next.

⁸Flash bracketing auto-cancels after the third shot.

⁹Also available in the camera. Flash FEC overrides in-camera FEC if both are enabled.

Camera Controls

Function	Camera button
FE Lock	*10
Modeling flash	DOF Preview
FEC	$\frac{1}{2}$ +/- ¹¹

Optically Synchronized Wireless Flash

Optically synchronized wireless flash can be done in three ways:

1. Wireless ETTL (ETTL $\frac{1}{2}$ $\frac{1}{2}$).

- Controlling ("master") flash is on-camera or connected by off-shoe cord.
- Maximum sync speed depends on camera (1/250 and up).
- 4 channel choices.
- Pre-flash to communicate with controlled ("slave") flashes.
- Pre-flash may illuminate scene weakly (roughly 1/256 power).
- Full ETTL, with FEC and Fb, available.
- (Almost) all control comes from on-camera unit.
- Ratios available (3 groups, including controller).
- Manual and multi-flash modes available.
- FEC available on controlled flashes.

2. Simple optical wireless ($\frac{1}{2}$ $\frac{1}{2}$ /SL C0).

- Controlled flash responds to any visible flash, including pop-up flashes, ETTL pre-flashes,¹² and other photographers.
- Flash unit also responds to radio triggers.
- Only manual mode available on controlled flash unit.
- Power levels (ratios) must be set on controlled flashes.
- ETTL on controlling flash (e.g., popup) doesn't interact with controlled units.
- Maximum sync speed depends on camera (1/250 and up).

3. Coded optical wireless. ($\frac{1}{2}$ $\frac{1}{2}$ /SL C1-C2, also known as "designated slave" mode).¹³

- Controlled flash only responds to compatible Sigma controller.
- Flash unit also responds to radio triggers.
- 2 channel choices.
- Controlling flash may illuminate scene weakly (roughly 1/256 power).
- Only works when camera is in M mode.¹⁴
- Power levels (ratios) must be set on controlled flashes.
- Maximum sync speed is 1/30 second.

ETTL wireless

On controller:

- Use MODE to choose ETTL $\frac{1}{2}$ $\frac{1}{2}$.
- Select FP, ⊗, zoom, FEC, Fb, and channel 1-4 as needed.
- For ratios, SElect until "r 1:1" appears. Then use + to choose 12 (2 groups) or 123. (The controller is always group #1; the controlled flashes can be set to any group.¹⁵)
- Choose multiple or manual mode if desired.

¹⁰Custom-function settings in the camera may disable this feature.

¹¹Also available on flash; camera overrides flash if both set.

¹²The pre-flash fires before the shutter opens.

¹³This mode seems useless except with radio triggers, since ETTL wireless supports all of this mode's features and more.

¹⁴In Tv mode, the smallest f-stop is selected, and the shutter speed is extended to match. In Av mode, 1/250 is selected. In P mode, 1/250 and the smallest f-stop are selected.

¹⁵It is not possible to use group-3 flashes and flash ratios unless there is at least one group-2 unit.

- For normal ETTL, SElect ratios of group 1 to group 2, and additional FEC stops for controlled #3.^{16,17}
- For manual ETTL, SElect until “r” appears, then use + to choose 12 or 123. Flash power in each group is given in absolute terms.
- For multiple-flash ETTL, all groups fire at same power.

On controllee:

- Choose ETTL $\frac{1}{2}$ /SL.
- Use SEL and +/- to pick channel and controllee group (ID). Channel must match controller. Group 1 fires with (and as strongly as) controller. Group 2 fires according to selected a:b ratio. Group 3 fires according to ± 3 -stop range chosen on controller.
- Additional FEC can be applied on controllee, independently of controller settings.

Simple optical wireless

On controller:

- Choose any flash mode (even a $\text{Ⓢ}/256$ non-firing mode).

On controllee:

- Choose $\frac{1}{2}$ /SL and channel 0 (C0).
- SElect desired power.
- F-stop affects displayed scale but doesn't affect picture.

Coded optical wireless

On controller:

- Choose $\frac{1}{2}$ /SL and channel 1 or 2 (C1 or C2).
- SElect power 1/1 and then press + to display “Ctl”.
- F-stop is irrelevant; controller will fire only weakly.¹⁸

On controllee:

- Choose $\frac{1}{2}$ /SL and channel 1 or 2 to match controller.
- SElect desired power.
- F-stop affects displayed scale but doesn't affect picture.

Guide Numbers at ISO 100, in Meters

Power	17	28	35	50	70	85	105
1/1	20.0	30.0	35.0	40.0	46.0	48.0	50.0
1/2	14.1	21.2	24.7	28.3	32.5	33.9	35.4
1/4	10.0	15.0	17.5	20.0	23.0	24.0	25.0
1/8	7.1	10.6	12.4	14.1	16.3	17.0	17.7
1/16	5.0	7.5	8.8	10.0	11.5	12.0	12.5
1/32	3.5	5.3	6.2	7.1	8.1	8.5	8.8
1/64	2.5	3.8	4.4	5.0	5.8	6.0	6.3
1/128	1.8	2.7	3.1	3.5	4.1	4.2	4.4

Guide Numbers at ISO 100, in Feet

Power	17	28	35	50	70	85	105
1/1	65.6	98.4	114.8	131.2	150.9	157.5	164.0
1/2	46.4	69.6	81.2	92.8	106.7	111.4	116.0
1/4	32.8	49.2	57.4	65.6	75.5	78.7	82.0
1/8	23.2	34.8	40.6	46.4	53.4	55.7	58.0
1/16	16.4	24.6	28.7	32.8	37.7	39.4	41.0
1/32	11.6	17.4	20.3	23.2	26.7	27.8	29.0
1/64	8.2	12.3	14.4	16.4	18.9	19.7	20.5
1/128	5.8	8.7	10.1	11.6	13.3	13.9	14.5

Guide Number Adjustments for ISO Changes

Apply the following adjustments if you aren't at ISO 100:

ISO	Multiply GN by	ISO	Multiply GN by
125	1.1	1000	3.2
160	1.3	1250	3.5
180	1.3	1500	3.9
200	1.4	1600	4.0
250	1.6	2000	4.5
320	1.8	2500	5.0
350	1.9	3000	5.5
400	2.0	3200	5.7
500	2.2	4000	6.3
640	2.5	5000	7.1
750	2.7	6000	7.7
800	2.8	6400	8.0

Guide Number Adjustments for High-Speed Sync

Note: According to my measurements, Table 2 in the manual is incorrect. The following table gives, for each HSS speed, the adjustment to apply to the guide number. This table works regardless of ISO, focal length, and measurement system.

Shutter	Multiply by	Divide by
1/320	0.56	1.8
1/400	0.50	2.0
1/500	0.45	2.2
1/640	0.40	2.5
1/800	0.35	2.8
1/1000	0.31	3.2
1/1250	0.29	3.5
1/1600	0.25	4.0
1/2000	0.22	4.5
1/2500	0.20	5.0
1/3200	0.18	5.6
1/4000	0.16	6.3
1/5000	0.14	7.1
1/6400	0.12	8.0
1/8000	0.11	9.0

¹⁶I have been unable to determine whether the FEC stops are relative to the controller or to controllee #2. I assume they are relative to the controller.

¹⁷The 1:2 ratio can be set to a range of 8:1 to 1:8, in what seems to be 1/2-stop increments. The 1:3 ratio can be set to a range of ± 3 stops in 1/3-stop increments.

¹⁸This mode can be used to achieve a manual flash at 1/256 power.