

**Guide Numbers:** Those numbers and scales on the back of the flash unit.  
 By Dwain Cox

It's important to remember guide numbers are a recommended starting point and you may need to tweak the exposures to your own personal taste. They will, however, give you good usable image to work with.  
**CAUTION:** Manufacturers test to determine GN are not all the same.

The duration of light from most modern flash units is from about 400<sup>th</sup> of a second at full power to about 50,000/sec at minimum power. The unit fires the same "strength" of light at all power settings, but the duration of the light changes as the power level decreases. Most modern cameras flash sync at 125/sec or slower. Some models sync at faster shutter speeds. The older flash bulbs required as much as a 30/sec for full light. Any shutter speed faster than that would reduce the effective light. (You had to use a blue bulb for color photos to correct the color. A clear or white bulb could be used for B/W.)

**For ISO/ASA 100 speed film only**

**Guide No.** divided by **f/Stop** equals **flash to subject Distance**                      **100 / 8 = 12.5 ft**

**Guide No.** divided by **flash to subject Distance** equals **f/Stop**                              **100 / 12.5 = f/ 8**

Doubling the ISO does *not* double the GN.

Film Speed	50	100	200	400
<b>Adjustment Factor</b>	<b>0.71</b>	<b>1.0</b>	<b>1.4</b>	<b>2.0</b>

When film speed doubles, the guide number changes by a factor of 1.4  
 When film speed is halved, the guide number changes by a factor of 0.7

**For ISO/ASA Other than 100 speed film**

(Guide No. times Adjustment Factor) divided by f/Stop equals Distance              **(100\*1.4) / 8 = 17.5 ft**

(Guide No. times Adjustment Factor) divided by Distance equals f/Stop              **(100\*1.4) / 17.5 = f/ 8**

<b>Distance Conversion chart for Flash Guide No. 100</b>								
<b>f/Stop</b>		<b>1</b>	<b>2</b>	<b>4</b>	<b>8</b>	<b>16</b>	<b>32</b>	<b>64</b>
<b>ISO/ASA</b>	<b>Adjustment Factor</b>							
50	0.71	71.00	35.50	17.75	8.88	4.44	2.22	1.11
100	1	<b>100.00</b>	<b>50.00</b>	<b>25.00</b>	<b>12.50</b>	<b>6.25</b>	<b>3.13</b>	<b>1.56</b>
200	1.4	140.00	70.00	35.00	17.50	8.75	4.38	2.19
400	2	200.00	100.00	50.00	25.00	12.50	6.25	3.13

<b>Distance Conversion chart for Flash Guide No. 119</b>								
<b>f/Stop</b>		<b>1</b>	<b>2</b>	<b>4</b>	<b>8</b>	<b>16</b>	<b>32</b>	<b>64</b>
<b>ISO/ASA</b>	<b>Adjustment Factor</b>							
50	0.71	84.49	42.25	21.12	10.56	5.28	2.64	1.32
100	1	<b>119.00</b>	<b>59.50</b>	<b>29.75</b>	<b>14.88</b>	<b>7.44</b>	<b>3.72</b>	<b>1.86</b>
200	1.4	166.60	83.30	41.65	20.83	10.41	5.21	2.60
400	2	238.00	119.00	59.50	29.75	14.88	7.44	3.72

<b>Distance Conversion chart for Flash Guide No. 150</b>								
<b>f/Stop</b>		<b>1</b>	<b>2</b>	<b>4</b>	<b>8</b>	<b>16</b>	<b>32</b>	<b>64</b>
<b>ISO/ASA</b>	<b>Adjustment Factor</b>							
50	0.71	106.50	53.25	26.63	13.31	6.66	3.33	1.66
100	1	<b>150.00</b>	<b>75.00</b>	<b>37.50</b>	<b>18.75</b>	<b>9.38</b>	<b>4.69</b>	<b>2.34</b>
200	1.4	210.00	105.00	52.50	26.25	13.13	6.56	3.28
400	2	300.00	150.00	75.00	37.50	18.75	9.38	4.69

**Note:** Flash units with Zoom capability require a different GN for each zoom point.