USE OF YOUR
RE GN TOPCOR LENS

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RE GN TOPCOR LENS

The RE GN Topcor M 50mm f/1.4 lens (and the RE GN Topcor 50mm f/1.8 lens) have been designed as universal use standard lenses of the highest performance and are representative of the high Topcor quality in optics. Both are modified Gauss type optical designs for obtaining superior optical performance and depiction.

However, one of their most outstanding features is automatic flash settings, obtained simply by setting the guide number of the flash bulb or electronic flash unit to the GN scale—which automatically sets the correct aperture as the subject is focused. The frustration of having to calculate the correct f/ number for the focused distance, as in the case of other lenses, has been completely eliminated from flash photography, and, together with the Auto Winder, brings greater mobility to the photographer.

Both standard lenses are designed to give you greater satisfaction in everyday photography but especially when taking snapshots and candid shots, in available light and at night, as well as for photographing children, animals, insects and other moving subjects.

NOMENCLATURE

RE GN Topcor M 50mm f/1.4 Lens (50mm f/1.8 Lens)

① Distance focusing ring
② Distance scale
③ Green-colored index
④ Aperture ring
⑤ Aperture scale (f/1.8 to f/22 with the f/1.8 lens)
⑥ GN scale
⑦ GN index
⑧ GN lock
⑨ Alignment dot for lens attachment/detachment

SPECIFICATIONS

Focal length	50 mm
Maximum aperture	f/1.4 (f/1.8)
Lens composition	7 elements 5 groups (6 elements 5 groups)
Lens diaphragm	
Type	Fully automatic
Exposure meter coupling	Full aperture exposure measurements
Scale	1.4—16 (1.8—22)
Angle of view	
Diagonal	47°
Horizontal	39°
Vertical	26°
Guide number scale	GN 10 to 80 (meter) GN 32 to 250 (ft.)
Filter mount	62mm; 0.75mm pitch
Lens hood	Bayonet type (same as f/1.8 lens)
Lens cap	65mm push-on type
Size	67mm dia. × 44mm
Weight	350 gr. (290 gr.)

NOTE:

1. Bracketed specifications are for the 50mm f/1.8 lens.
2. The reading direction of the distance scale has been reversed, compared to previous TOPCOR lenses, in order to give it Flash-Matic operation.

   The depth of field scale has also been eliminated for the same reason. However, the actual depth of field can be checked visually by using the depth of field preview lever and, therefore, its elimination is not important. For precise depth of field settings, moreover, the depth of field table can be utilized as in the past.

   The aperture ring click-stops when used independently, but automatically loses its click-stops when coupled to the GN scale, in order to move smoothly together with the interlocked distance focusing ring.

GUIDE NUMBER

The guide number is based on the shutter speed and film speed being used and is usually found in the instruction sheets furnished with the flash bulbs, as well as instructions supplied with electronic flash units.

The guide number thus obtained is very important for finding the correct aperture or f/number to be used with the distance that the flash gun or electronic flash unit is used from the subject being illuminated. (When the flash gun or electronic flash unit is used on the camera, the focused distance or camera-to-subject distance is also the flash-to-subject distance.)

The guide number is important because the exposure meter cannot be used for taking a reading when flash illumination is being used. When the TOPCON Flash Gun is used, the Flash Calculator on the back of the gun may be used for quickly and simply finding the suitable aperture for the bulb being used at the distance focused and thus is handy for use with regular Auto-Topcor lenses.

In the case of the RE GN Topcor M 50mm f/1.4 lens and RE GN Topcor 50mm f/1.8 lens, however, a much faster and simpler system has been developed right on the lens so that the correct f/number is set automatically when the distance focusing ring is adjusted, by simply using the GN (guide number) scale and its GN lock.

GN SCALE

The GN (guide number) scale has two rows of numerals. The top row, which has orange-colored figures, is for use with the British system, when focusing in feet, while the bottom row, which has white-colored numerals is for use with the metric system. Both scales are for use with a film speed of ASA 100 or equivalent.

The top row has the following guide numbers:

250, (220), 180, (153), 125, (110), 90, (77), 63, (54), 45, (38) and 32.

The bottom row has the following guide numbers:

80, (67), 56, (48), 40, (34), 28, (24), 20, (17), 14, (12) and 10.

The numerals in brackets are the values of those dots between the unbracketed numerals (which are those actually engraved on the GN scale.

If the guide number indicated for the flash bulb or electronic flash unit does not coincide with those on the GN scale, set it to the nearest guide number on the scale.

FINDING THE GUIDE NUMBER

If information on the guide number is not available in the instructions supplied with the electronic flash unit, use the Flash Calculator dial for finding the guide number of the equipment.

Set the dial for ASA 100 and check the aperture/flash distance combinations indicated by the dial. For example, the dial may show that f/4 should be used for a flash distance of 7 meters, in which case, the guide number would be the product of the aperture and flash distance, or $4 \times 7 = 28$,

Set the GN 28 (meter) to the GN scale, in the usual manner, and Flash-Matic operations will be possible.

AUTOMATIC FLASH SETTINGS

As noted, find the guide number for the flash bulb or electronic flash unit from their instruction sheets and set it to the GN scale. In other words, adjust the GN scale (which is on the distance focusing ring) until the required guide number is opposite the red index dot on the GN lock. When aligned correctly, slide the GN lock towards the front end of the lens and, if alignment is correct, it will lock into place.

Locking the GN scale means that adjusting the distance focusing ring now will result in adjusting the aperture ring, also, which has, in the meantime, been released from its click-stops and will rotate smoothly together with the focusing ring.

As can be checked by adjusting the focusing ring, locking the GN scale prevents the focusing ring from being rotated beyond certain limits, or, in other words, beyond the flash range, although all the f/stops can be used, as in the following examples:—

Guide Numbers	**Apertures**	**Focused Distances**
10 (meter)	f/1.4 to f/16 (f/1.8 to f/22)	7m to 0.7m (5m to 0.6m)
80 (meter)	f/1.4 to f/16 (f/1.8 to f/22)	57m to 5m (40m to 3.7m)

Remarks:
Information in brackets are for the f/1.8 lens.

Warning
Automatic flash settings are not possible for off-the-camera flash illumination and bounce lighting, because the flash-to-subject distance and flash-to-ceiling-to-subject distance respectively are not the same as the camera-to-subject or focused distance.

USING OTHER FILM SPEEDS

As noted, the GN scale has been calibrated for ASA 100 film, whereas films, both color and black-and-white, are available in many other speeds or sensitivities, as well as being indicated in other standards.

The following conversion table should be used for finding the equivalent ASA 100 guide number when the guide number for another film speed is indicated.

ASA	GN. feet
25	32 . 45 . 63 . 90 . 125 . 180 . 250
32~40	. 45 . 63 . 90 . 125 . 180 . 250
50	45 . 63 . 90 . 125 . 180 . 250
64~80	. 63 . 90 . 125 . 180 . 250
100	63 . 90 . 125 . 180 . 250
125~160	. 90 . 125 . 180 . 250
200	90 . 125 . 180 . 250
250~320	. 125 . 180 . 250
400	125 . 180 . 250

DIN	GN. meter
15	10 . 14 . 20 . 28 . 40 . 56
16~17	10 . 14 . 20 . 28 . 40 . 56 .
18	10 . 14 . 20 . 28 . 40 . 56 . 80
19~20	. 14 . 20 . 28 . 40 . 56 . 80
21	14 . 20 . 28 . 40 . 56 . 80
22~23	. 20 . 28 . 40 . 56 . 80
24	20 . 28 . 40 . 56 . 80
25~26	. 28 . 40 . 56 . 80
27	28 . 40 . 56 . 80

For example, if the guide number for ASA 25 film is 45 (ft.), with the electronic flash unit being used, then find the equivalent GN (meter) from the top row of numerals, or 14. Next, move horizontally across the ASA 25 row until you reach 14, then move down towards the row for ASA 100 and the figure intersected will be the required guide number for setting to the GN scale, or 28, in this case. (Actually, you can refer to the top rows once more, as it is much nearer in this case.)

Or, if a GN 20 is indicated for DIN 18 film speed, move across the DIN 18 row until you reach 20 and then move down to the ASA 100 row, which will show you that your required GN is 28.

Once the equivalent ASA 100 guide number has been obtained, further operations are identical to those explained for the ASA 100 film speed.

FINDING YOUR GUIDE NUMBER

You may not be satisfied with the flash-illuminated photos taken with the guide numbers indicated by the manufacturer of the flash bulb and/or electronic flash unit. This may be the case because the guide number is normally based on the use of an efficient reflector in a room of average size and brightness and because the maker's idea of an appropriately exposed shot may differ slightly from yours.

If you do most of your shooting in rooms smaller or larger than average, or brighter or darker than average, or if you prefer slightly more exposed or under-exposed shots, then try flash shots with your own personal guide number for your electronic flash unit or flash gun (the same bulb must always be used).

To find out your own guide number, place your camera at 5 meters, or the distance most likely to be used by you, from the subject, in the type of room that you expect to take flash shots most often.

While a slow color film would be best, load the camera with the film that you expect to use, and make a series of test shots, starting with the recommended guide number and then bracketing your shots on both sides of the "correct" f/number, varying the exposure by two stops over and one stop under.

Upon developing the film, choose the shot that pleases you the most and check your data for the f/number used for that shot. Your own guide number can then be calculated by multiplying the flash distance (camera-to-subject distance with flash on the camera) by the f/number used. Thus, if the distance used was 5 meters (as in the example above, and the best photo was taken with f/4 lens opening, your personal GN will be 20, for the film used.