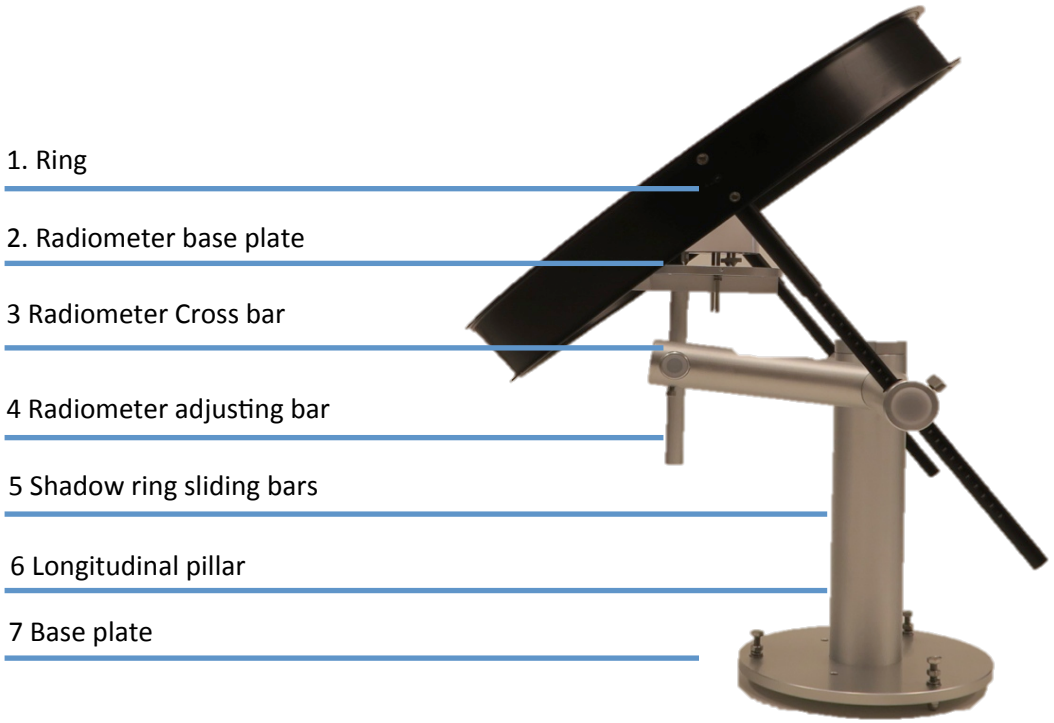
# Quick Start Guide RSR-01

Radiometer Shading Ring (RSR-01) is compatible with any EKO MS-series radiometer with or without MV-01 ventilation unit.

The RSR-01 is easy to assemble and install. Please follow the instructions in the Quick start guide.

# Quick Start Guide RSR-01

Package content:



# Quick Start Guide RSR-01

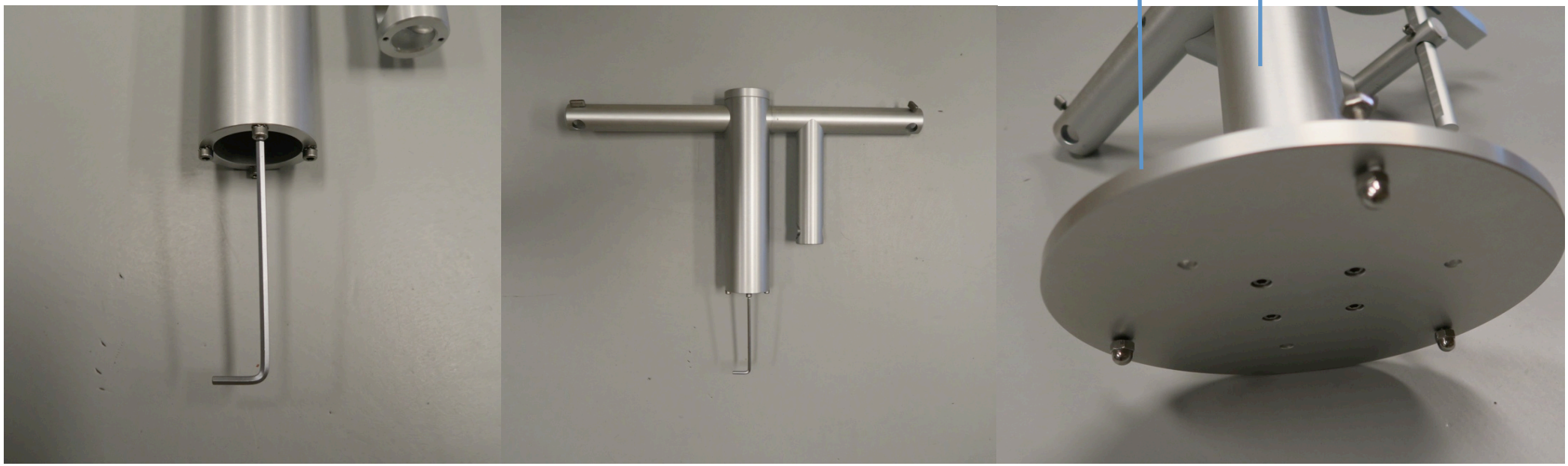
## 1. Assembly

### Mount Base plate

6 Longitudinal pillar

7 Base plate

*Attach base plate and tighten the bolts.*

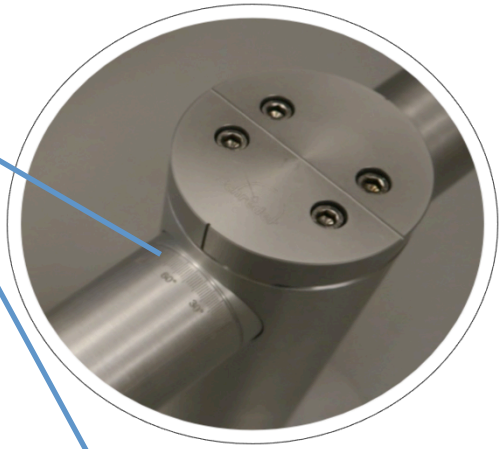


# Quick Start Guide RSR-01

## 1. Assembly

Adjust cross bar (Latitude) degrees

*Release screws at the top to rotate the cross bar. Tighten screws when the cross bar has the correct angle.*

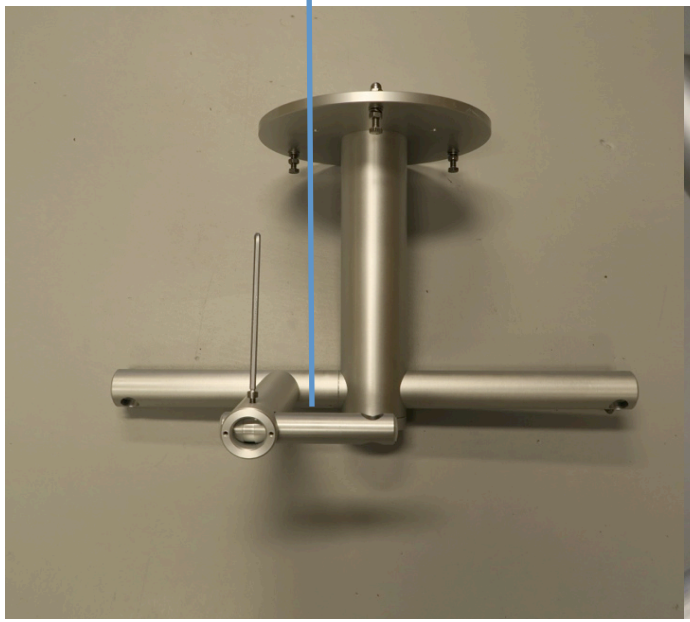


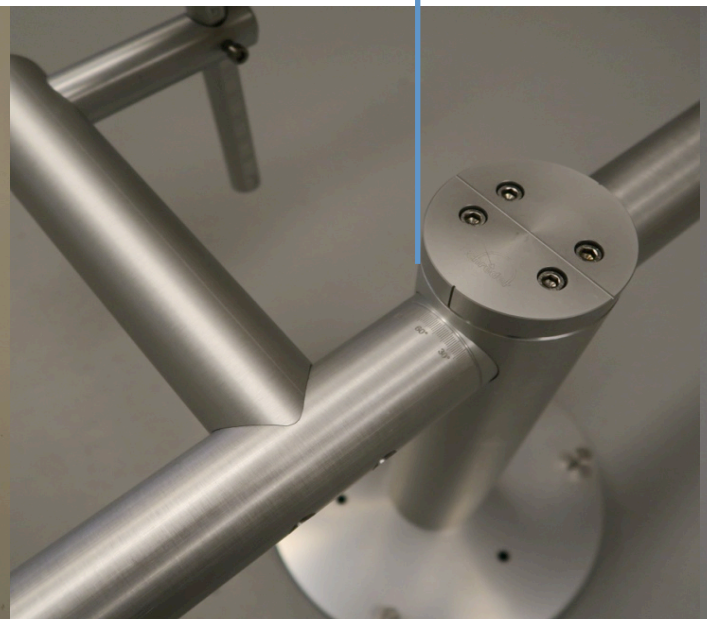
Mount cross bar

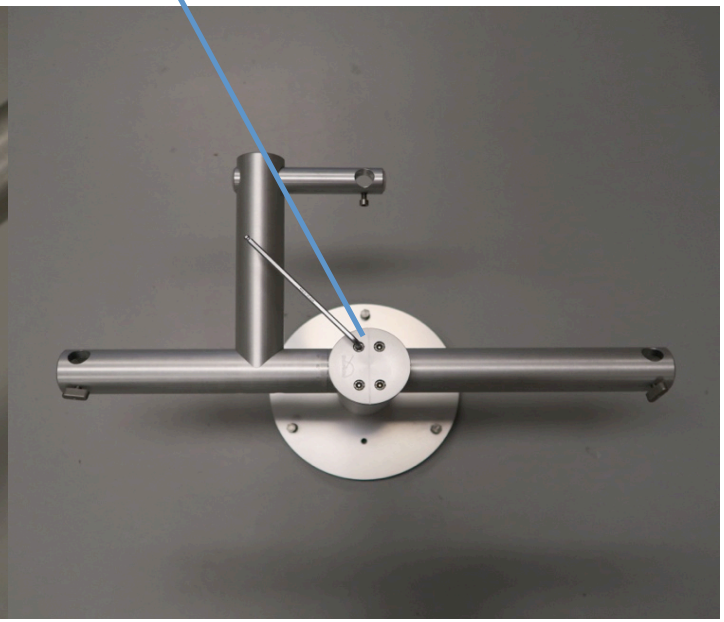
6 Cross bar

3 Radiometer cross bar

*Attach the radiometer cross bar.*







# Quick Start Guide RSR-01

1. Assembly

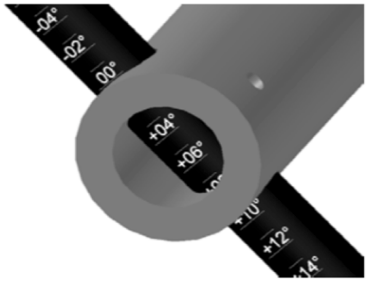
Mount Shadow ring

6 Shadow ring sliding bars (text outside)

3 Shadow ring

# Quick Start Guide RSR-01

## 1. Assembly



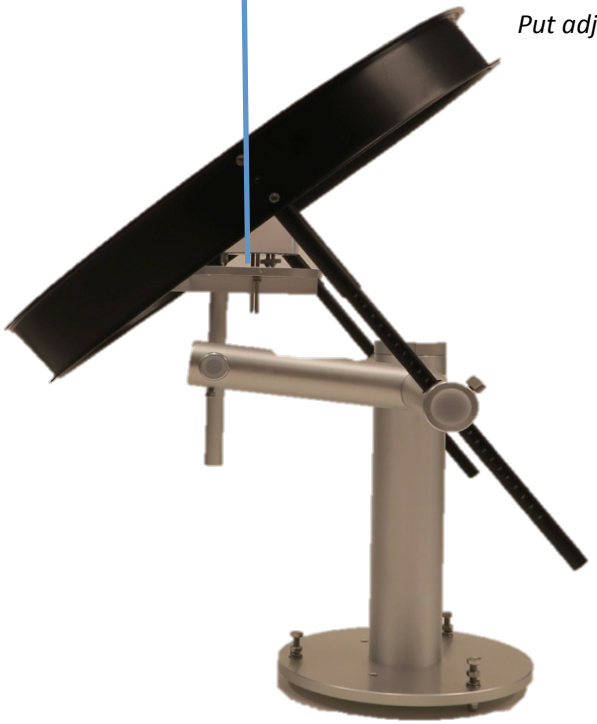

*Before installing the detector itself the detector-adjusting bar has to be shifted to an initial position. The easiest way to achieve this is first to set the shadow ring sliding bars to equinoctial position (declination δ = 0°)*

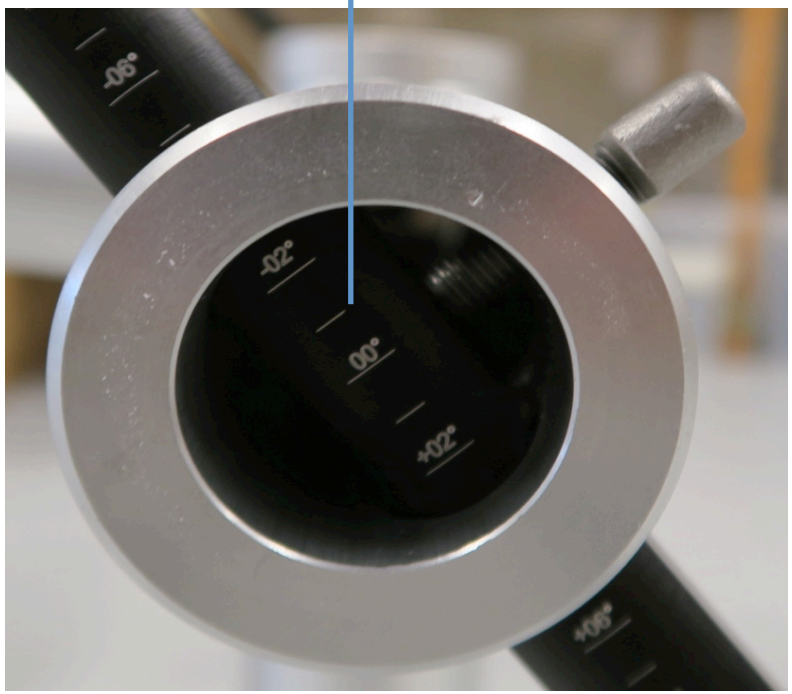
### Mount Shadow ring

6 Shadow ring sliding bars (text outside)

4 Radiometer adjusting bar

*Put adjusting bar in any position.*

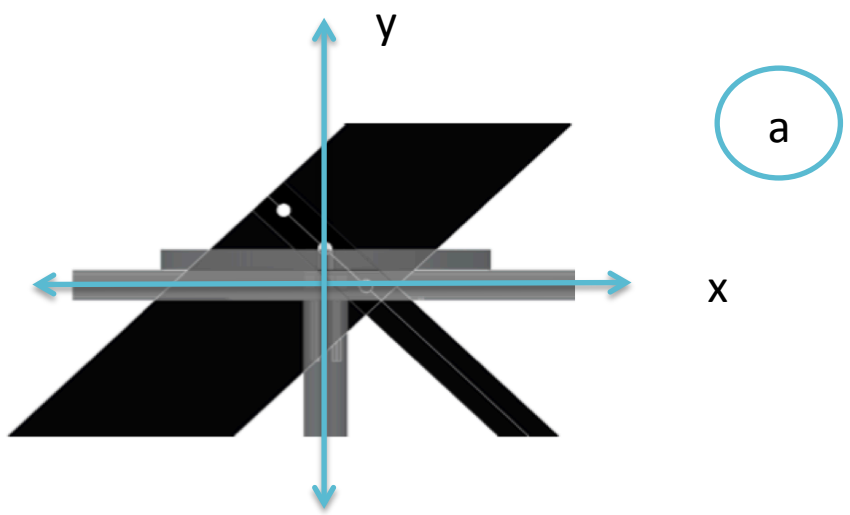




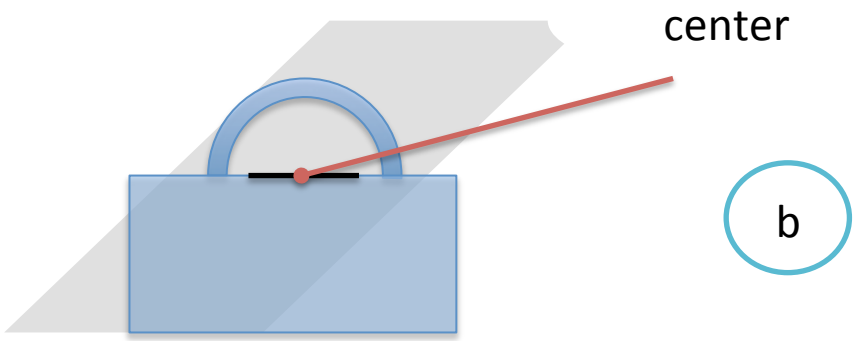
# Quick Start Guide RSR-01

1. Assembly

At declination δ = 0° the central point of the detector black surface is supposed to be at the shading ring middle position (x,y). The point (y) can only be found when the sensor is installed. Before installing the sensor adjust to point x.



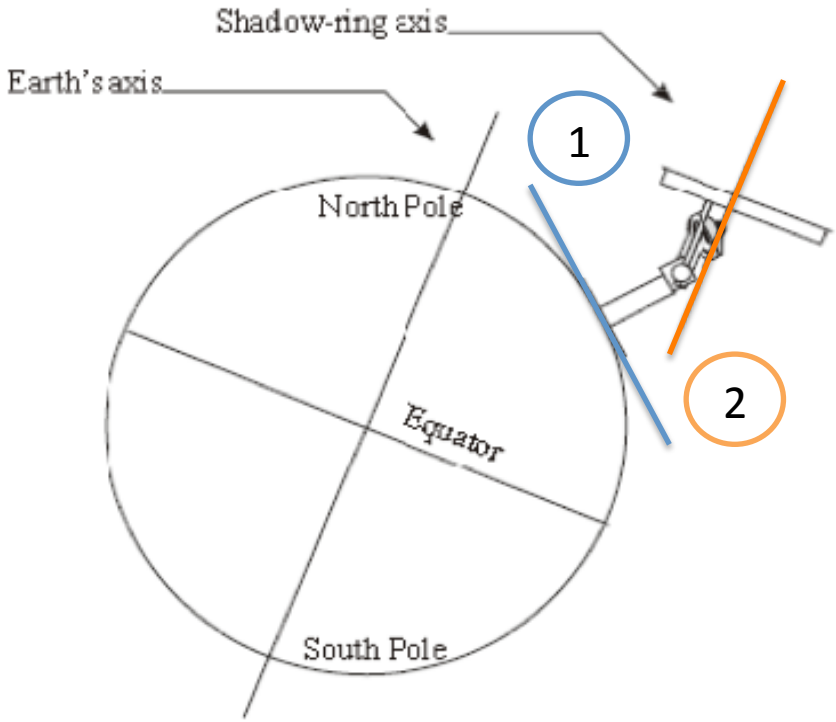

Shown in illustration (a) the mounting plate is taken as reference. The top of the mounting plate can be moved in x and y direction. When the sensor is already mounted, illustration (b), take the black surface as a reference.



# Quick Start Guide RSR-01

1. Installation

The RSR-01 assembly was completed and can be installed at the final location.





The mounting base of the RSR-01 should be placed in **horizontal position (leveled) and true North/South orientation** .

# Quick Start Guide RSR-01

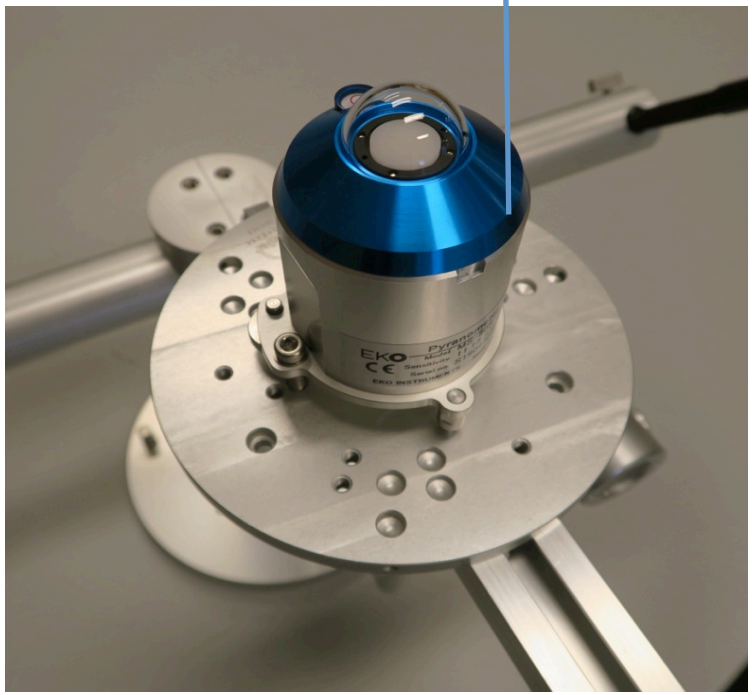
## 1. Installation

### Pyranometer installation

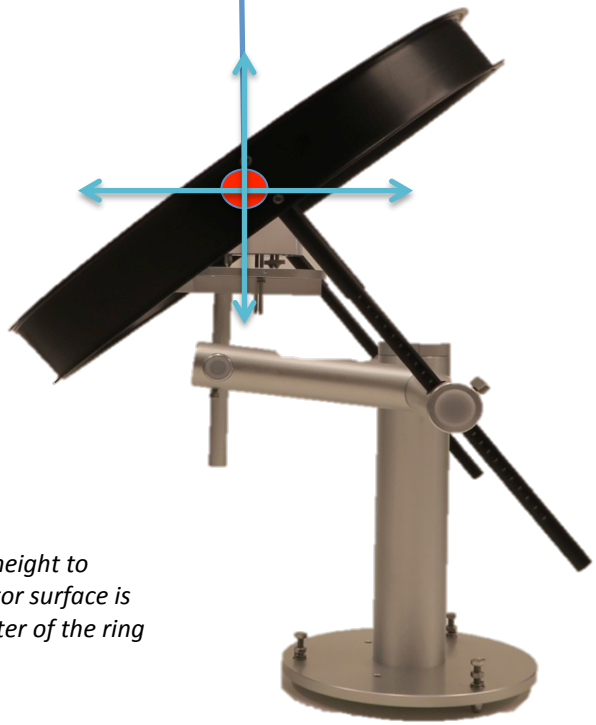
6 Shadow ring sliding bars (text outside)

4 Radiometer plate

*Install the pyranometer with the 2 bolts.*



*The pyranometer can be put in horizontal position after the assembly and installation of the RSR-01 is completed.*



*Adjust the sensor height to position the detector surface is position in the center of the ring (y)*

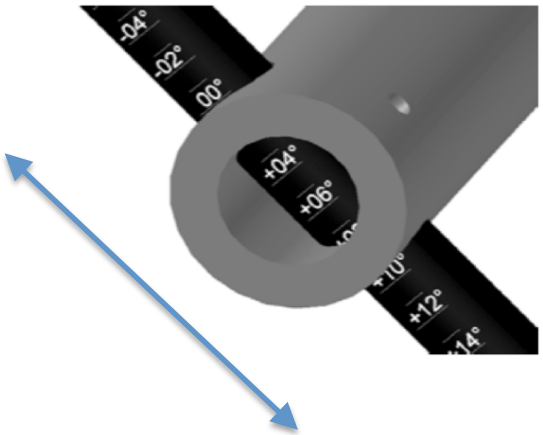
# Quick Start Guide RSR-01

## 1. Installation

The correct shadow ring position is a function of the declination of the sun, which shows a trigonometric variation over the year.

To readjust the position of the ring the shadow ring sliding bar needs to be shifted corresponding the attached scale on the bars. The scale shows the declination and the correct values have to be read out from the upper side of the crossbar according to the related figure.

Positive values refer to the period 21.03. to 23.09. and negative values concern the period 23.09. till 21.03.




Declination values throughout the year are indicated on the next slide. The bar need to be adjusted on a weekly basis.

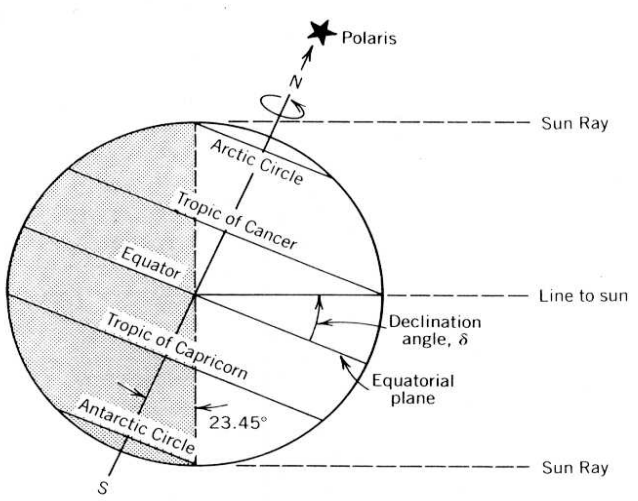
# Quick Start Guide RSR-01

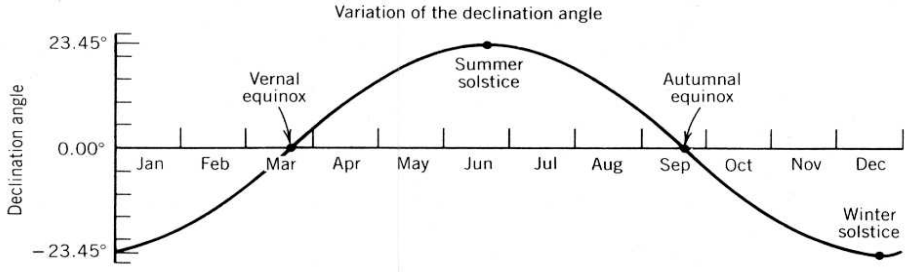
## 1. Installation



**Table of the Declination of the Sun**
**Mean Value for the Four Years of a Leap-Year Cycle**
*Positive sign (+) Sun north of Celestial Equator; negative sign (-) Sun south of Celestial Equator.*

| Day | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | -23°04' | -17°20' | -7°49' | +4°18' | +14°54' | +21°58' | +23°09' | +18°10' | +8°30' | -2°57' | -14°14' | -21°43' |
| 2 | -22°59' | -17°03' | -7°26' | +4°42' | +15°12' | +22°06' | +23°05' | +17°55' | +8°09' | -3°20' | -14°34' | -21°52' |
| 3 | -22°54' | -16°46' | -7°03' | +5°05' | +15°30' | +22°14' | +23°01' | +17°40' | +7°47' | -3°44' | -14°53' | -22°01' |
| 4 | -22°48' | -16°28' | -6°40' | +5°28' | +15°47' | +22°22' | +22°56' | +17°24' | +7°25' | -4°07' | -15°11' | -22°10' |
| 5 | -22°42' | -16°10' | -6°17' | +5°51' | +16°05' | +22°29' | +22°51' | +17°08' | +7°03' | -4°30' | -15°30' | -22°18' |
| 6 | -22°36' | -15°52' | -5°54' | +6°13' | +16°22' | +22°35' | +22°45' | +16°52' | +6°40' | -4°53' | -15°48' | -22°25' |
| 7 | -22°28' | -15°34' | -5°30' | +6°36' | +16°39' | +22°42' | +22°39' | +16°36' | +6°18' | -5°16' | -16°06' | -22°32' |
| 8 | -22°21' | -15°15' | -5°07' | +6°59' | +16°55' | +22°47' | +22°33' | +16°19' | +5°56' | -5°39' | -16°24' | -22°39' |
| 9 | -22°13' | -14°56' | -4°44' | +7°21' | +17°12' | +22°53' | +22°26' | +16°02' | +5°33' | -6°02' | -16°41' | -22°46' |
| 10 | -22°05' | -14°37' | -4°20' | +7°43' | +17°27' | +22°58' | +22°19' | +15°45' | +5°10' | -6°25' | -16°58' | -22°52' |
| Day | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 11 | -21°56' | -14°18' | -3°57' | +8°07' | +17°43' | +23°02' | +22°11' | +15°27' | +4°48' | -6°48' | -17°15' | -22°57' |
| 12 | -21°47' | -13°58' | -3°33' | +8°28' | +17°59' | +23°07' | +22°04' | +15°10' | +4°25' | -7°10' | -17°32' | -23°02' |
| 13 | -21°37' | -13°38' | -3°10' | +8°50' | +18°14' | +23°11' | +21°55' | +14°52' | +4°02' | -7°32' | -17°48' | -23°07' |
| 14 | -21°27' | -13°18' | -2°46' | +9°11' | +18°29' | +23°14' | +21°46' | +14°33' | +3°39' | -7°55' | -18°04' | -23°11' |
| 15 | -21°16' | -12°58' | -2°22' | +9°33' | +18°43' | +23°17' | +21°37' | +14°15' | +3°16' | -8°18' | -18°20' | -23°14' |
| 16 | -21°06' | -12°37' | -1°59' | +9°54' | +18°58' | +23°20' | +21°28' | +13°56' | +2°53' | -8°40' | -18°35' | -23°17' |
| 17 | -20°54' | -12°16' | -1°35' | +10°16' | +19°11' | +23°22' | +21°18' | +13°37' | +2°30' | -9°02' | -18°50' | -23°20' |
| 18 | -20°42' | -11°55' | -1°11' | +10°37' | +19°25' | +23°24' | +21°08' | +13°18' | +2°06' | -9°24' | -19°05' | -23°22' |
| 19 | -20°30' | -11°34' | -0°48' | +10°58' | +19°38' | +23°25' | +20°58' | +12°59' | +1°43' | -9°45' | -19°19' | -23°24' |
| 20 | -20°18' | -11°13' | -0°24' | +11°19' | +19°51' | +23°26' | +20°47' | +12°39' | +1°20' | -10°07' | -19°33' | -23°25' |
| Day | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 21 | -20°05' | -10°52' | 0°00' | +11°39' | +20°04' | +23°26' | +20°36' | +12°19' | +0°57' | -10°29' | -19°47' | -23°26' |
| 22 | -19°52' | -10°30' | +0°24' | +12°00' | +20°16' | +23°26' | +20°24' | +11°59' | +0°33' | -10°50' | -20°00' | -23°26' |
| 23 | -19°38' | -10°08' | +0°47' | +12°20' | +20°28' | +23°26' | +20°12' | +11°39' | +0°10' | -11°12' | -20°13' | -23°26' |
| 24 | -19°24' | -9°46' | +1°11' | +12°40' | +20°39' | +23°25' | +20°00' | +11°19' | -0°14' | -11°33' | -20°26' | -23°26' |
| 25 | -19°10' | -9°24' | +1°35' | +13°00' | +20°50' | +23°24' | +19°47' | +10°58' | -0°37' | -11°54' | -20°38' | -23°25' |
| 26 | -18°55' | -9°02' | +1°58' | +13°19' | +21°01' | +23°23' | +19°34' | +10°38' | -1°00' | -12°14' | -20°50' | -23°23' |
| 27 | -18°40' | -8°39' | +2°22' | +13°38' | +21°12' | +23°21' | +19°21' | +10°17' | -1°24' | -12°35' | -21°01' | -23°21' |
| 28 | -18°25' | -8°17' | +2°45' | +13°58' | +21°22' | +23°19' | +19°08' | +9°56' | -1°47' | -12°55' | -21°12' | -23°19' |
| 29 | -18°09' | -8°03' | +3°09' | +14°16' | +21°31' | +23°16' | +18°54' | +9°35' | -2°10' | -13°15' | -21°23' | -23°16' |
| 30 | -17°53' | | +3°32' | +14°35' | +21°41' | +23°13' | +18°40' | +9°13' | -2°34' | -13°35' | -21°33' | -23°12' |
| 31 | -17°37' | | +3°55' | | +21°50' | | +18°25' | +8°52' | | -13°55' | | -23°08' |



EKO Beyond Accuracy.

For any questions
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