EKO

ISO Secondary Standard **Pyranometer**

Quick Start Guide

MS-80 [Analog Output (mV)]

MS-80A [Current Output (4-20mA)]

MS-80M [Digital Output (RS-485 Modbus® RTU)]

5 YEARS WARRANTY

Thank you for purchasing EKO products.

This sheet provides the basic instruction for setup. See the Instruction Manual for further detailed information about this product.

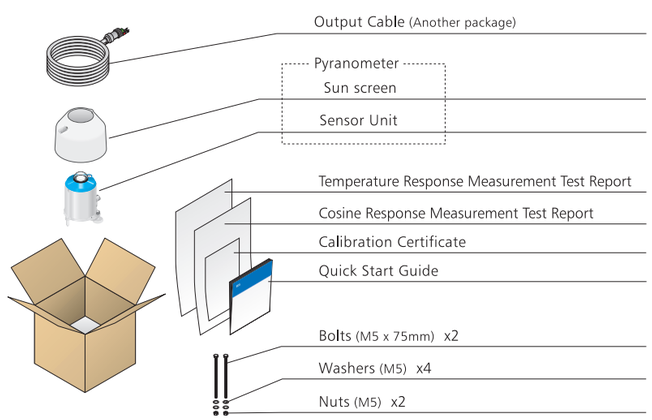
Product Warranty

Please contact EKO Instruments or your distributor for further details. The warranty is only subjected to the instrument which is installed and used in correct manner. EKO will not be reliable for any loss or damage caused from improper installation or use.

Model	Dimension [mm] (W x D x H)	Weight
MS-80	96 x 96 x 101	0.40 kg
MS-80A	96 x 96 x 101	0.43 kg
MS-80M	96 x 96 x 101	0.43 kg

1 Package Contents

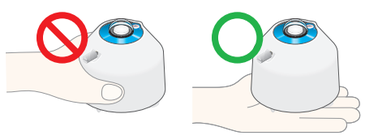
First, please check the package contents. If any part is missing or damaged, please contact EKO.



・Please download the instruction manual from EKO website.
・It is recommended to keep the original packaging in case pyranometer is shipped back for recalibration or repair.

Caution for handling

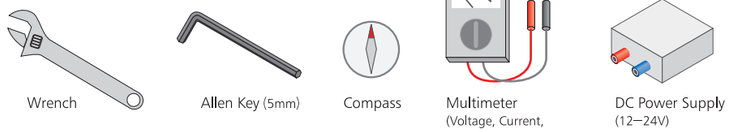
⚠ Always hold the pyranometer from the bottom when carrying. Do not hold the sun screen part; sensor unit may drop.



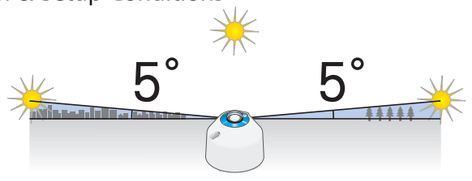
2 Preparation to Install

1 Required Tools

Please prepare these tools.

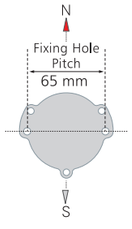


2 Location & Setup Conditions

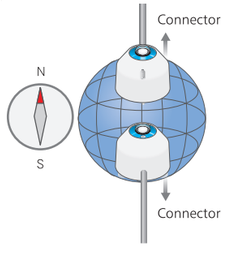


● Select a location with free horizon, without any obstructions and light relfections throughout a day.

● Fixing Holes on Installation Base



● Place the pyranometer with the Cable Connector facing the nearest pole.



3 Installation

1 Remove the sun screen.

Loosen the knurling screw to remove the sun screen

2 Level the pyranometer.

Horizontal surface:
Level the pyranometer by adjusting the leveling screws.

Inclined surface:
Install to an inclined surface after adjustment of the leveling screws at a horizontal place.

3 Fasten the pyranometer on installation base with attached bolts.

⚠ For installation do not remove the leveling screws.

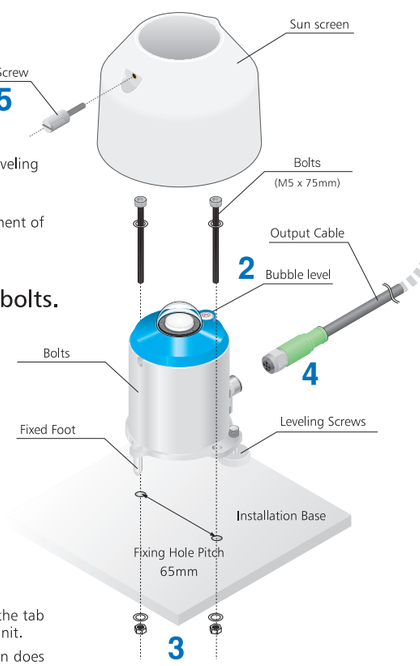
4 Insert output cable to the connector plug securely.

⚠ Connect the grounding wire for power cable to prevent electrical shocks.

5 Attach the sun screen.

Place the sun screen in the proper position; insert the tab inside the sun screen to the groove on the sensor unit.

Fasten the knurling screw, make sure the sun screen does not come off.



4 Measurement & Maintenance

Measurement Range

Set measurement range on the measuring instrument according to the below output range.

	MS-80 *	***MS-80A***	***MS-80M***
Output Range	0 — 14 [mV]	4 — 20 [mA]	Digital Output:
Measurement Range	0 — 20 [mV]	4 — 20 [mA]	RS485 Modbus® RTU

* ⚠ When using a data logger, use device with input impedance more than 100MΩ.

Calculate Solar Irradiance

Using following formulas, pyranometer output value can be converted into solar irradiance.

MS-80

$$I_{[W/m^2]} = \frac{E_{[\mu V]}}{S_{[\mu V/W \cdot m^{-2}]}}$$

I : Solar Irradiance [W/m²]
E : Pyranometer Output Voltage [μV]
S : Sensitivity [μV/W・m⁻²]

MS-80A

$$I_{[W/m^2]} = (I_{out\,[mA]} - 4) \times 100$$

I : Solar Irradiance [W/m²]
I_{out}: Pyranometer Output Current [mA]

MS-80M Conversion is not necessary as the output can be obtained as solar irradiance in W/m².

Periodic Maintenance

Bubble level: Check if the bubble is within the center ring. Readjust if necessary.

Glass Dome: Keep the glass dome clean by wiping with soft cloth and alcohol. Make sure there are no scratches on the glass dome.

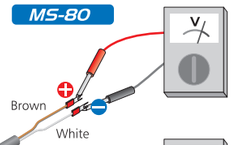
Connector & Cable Condition: Check and make sure the connector is connected securely and the cable is not damaged. Also check the cable is fixed.

Recalibration & desiccant replacement

To maintain a proper measuring condition, it is recommended to recalibrate every 5 years. Please contact EKO for recalibration service. Also the desiccants inside the sensor unit are replaced at the time of recalibration. (Customer cannot replace the desiccant himself)

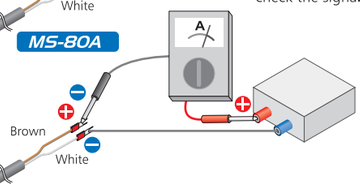
6 Checking the Output Voltage

MS-80



Connect to multimeter to check the signal output.

MS-80A



MS-80M Since the output is in digital, connect to PC and use EKO Sense Configurator to check.

Approximate Output Values

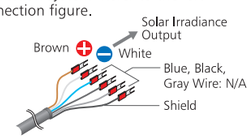
Conditions	Cloudy	Partly Cloudy	Clear
Solar Irradiance [W/m²]	< 300	> 300	> 700
Output Voltage [mV] ***MS-80***	< 3.0	> 3.0	> 7.0
Output Current [mA] ***MS-80A***	< 7.0	> 7.0	> 11.0

7 Wiring

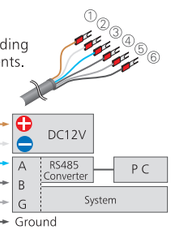
⚠ To Prevent signal noise always connect the cable shield to the measurement device common ground.
Connect fuse for MS-80A and MS-80M. Fix the cables to prevent swinging by wind.

MS-80 Connect to data logger

MS-80A Connect to 4-20mA data acquisition system. Refer to the left connection figure.



MS-80M Connect wires according to below arrangements.



EKO INSTRUMENTS

ISO9001 ISO14001 ISO17025 CE

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