

Quick Start Guide

- MS-80 MS-60 MS-40** Analog Output [mV]
- MS-80A MS-60A MS-40A** Current Output [4-20mA]
- MS-80M MS-60M MS-40M** Digital Output [RS485 Modbus®RTU]

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.

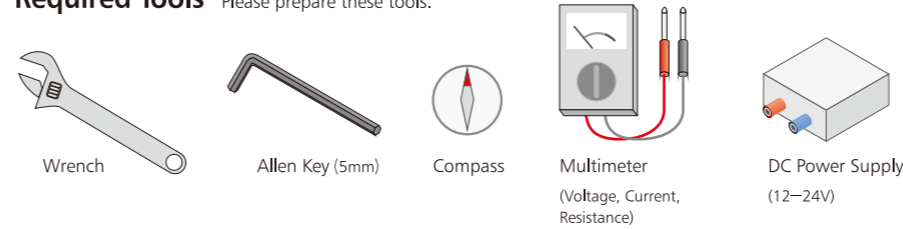
Model	Dimension [mm] (W x D x H)	Weight
MS-80	96 x 96 x 101	0.35 kg
MS-80A, MS-80M	96 x 96 x 101	0.39 kg
MS-60	96 x 96 x 107.5	0.37 kg
MS-60A, MS-60M	96 x 96 x 107.5	0.41 kg
MS-40	96 x 96 x 101	0.33 kg
MS-40A, MS-40M	96 x 96 x 101	0.37 kg



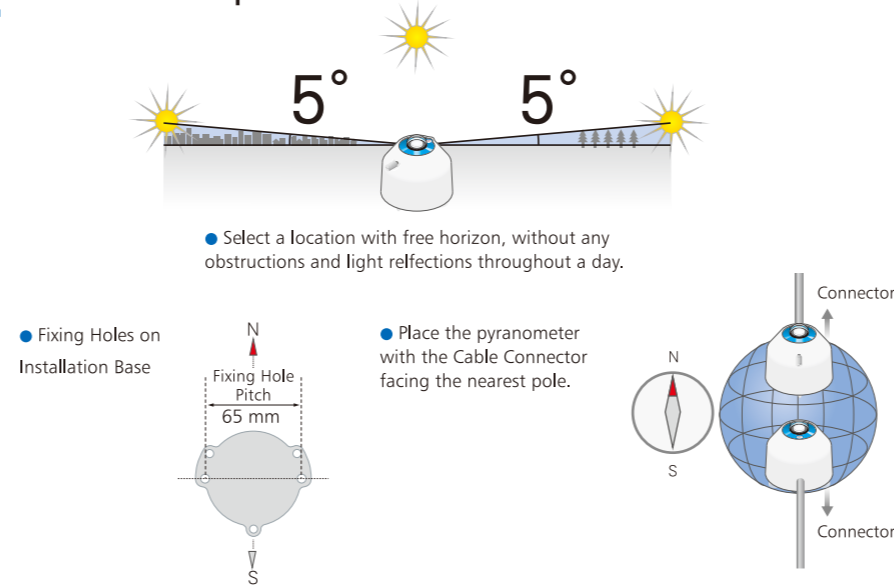
2 Preparation to Install

1 Required Tools

Please prepare these tools.



2 Location & Setup Conditions



4 Measurement & Maintenance

Measurement Range

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

	MS-80*, MS-60, MS-40	MS-80A, MS-60A, MS-40A	MS-80M, MS-60M, MS-40M
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.

Analog Output

$$I [W/m^2] = \frac{E [\mu V]}{S [\mu V/W \cdot m^{-2}]}$$

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

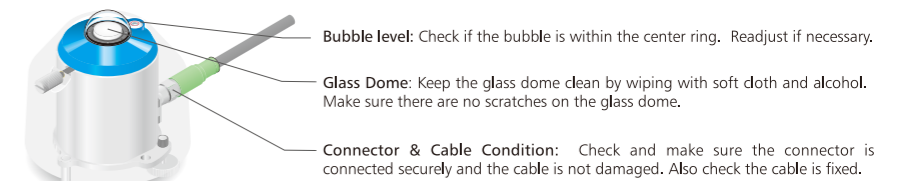
Current Output

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

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

Digital Output Conversion is not necessary as the output can be obtained as solar irradiance in W/m².

Periodic Maintenance



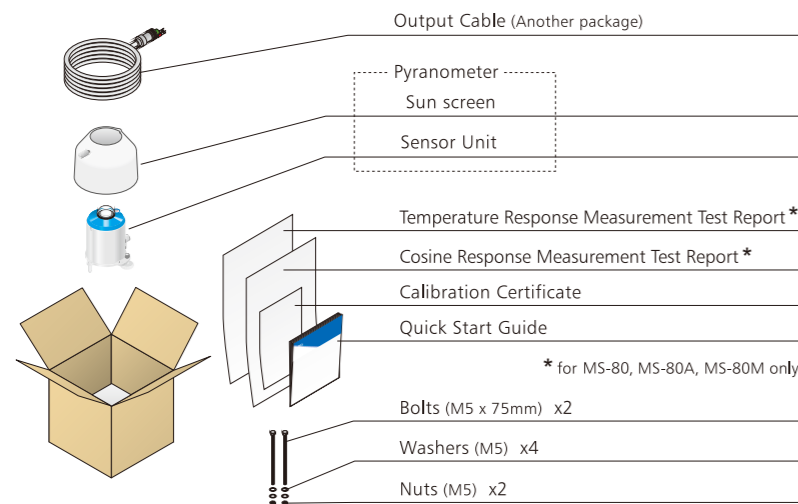
Recalibration & desiccant replacement

To maintain a proper measuring condition, it is recommended to recalibrate every 5 years* for MS-80. Please contact EKO for recalibration service.

* MS-60 and MS-40 : recommended to recalibrate every 2 years.

1 Package Contents

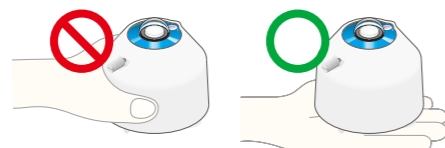
First, please check the package contents. If any part is missing or damaged, please contact EKO.



• Please see the manual for further information about the product. Manual can be downloaded 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.



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.

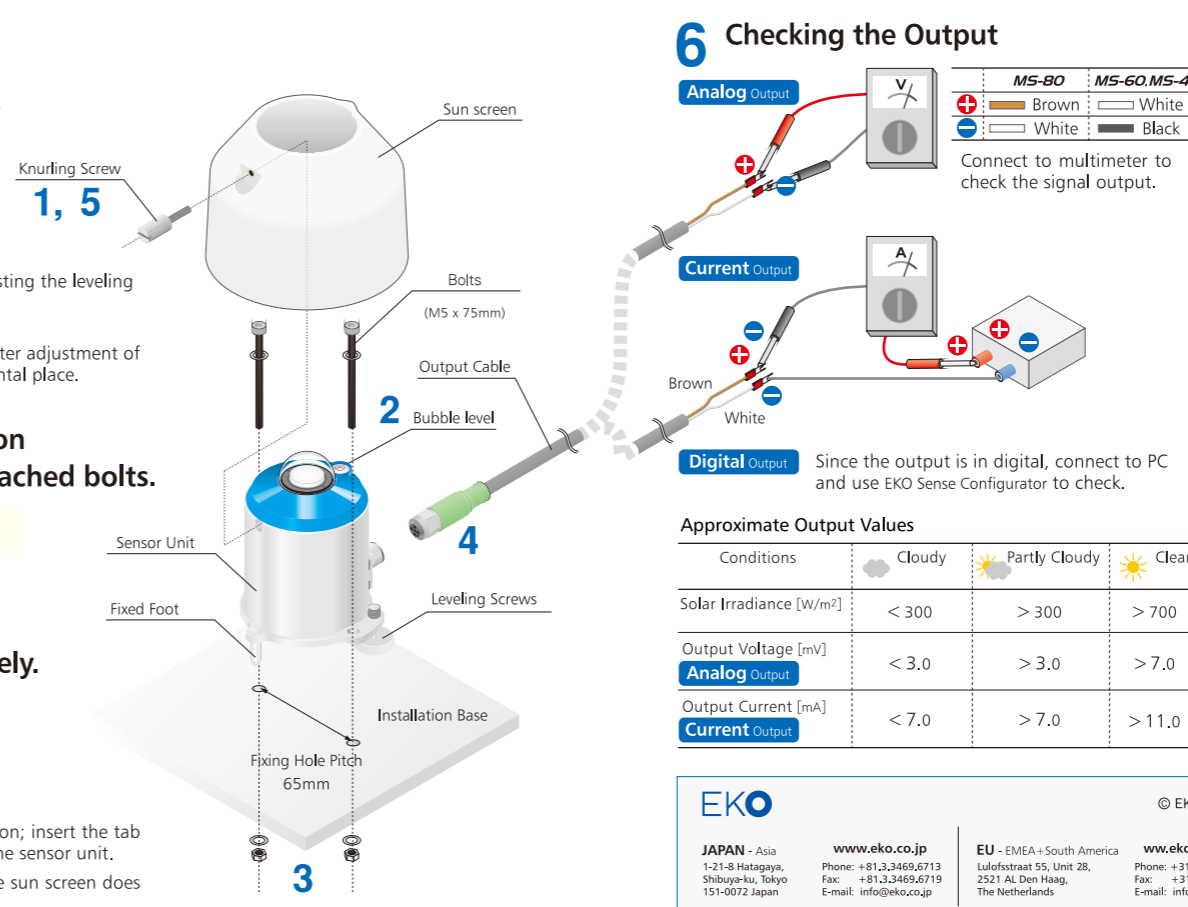
3 Fasten the pyranometer on installation base with attached bolts.

For installation do not remove the leveling screws.

4 Insert output cable to the connector plug securely.

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.



6 Checking the Output

Analog Output

MS-80	MS-60, MS-40
+	+
+	+
-	-
-	-

Connect to multimeter to check the signal output.

Current Output

Connect to multimeter to check the signal output.

Digital Output Since the output is in digital, connect to PC and use EKO Sense Configurator to check.

Approximate Output Values

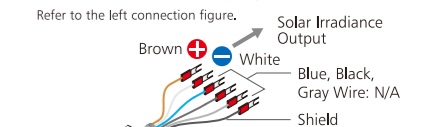
Conditions	☁ Cloudy	☀ Partly Cloudy	☀ Clear
Solar Irradiance [W/m ²]	< 300	> 300	> 700
Output Voltage [mV]	< 3.0	> 3.0	> 7.0
Output Current [mA]	< 7.0	> 7.0	> 11.0

7 Wiring

To Prevent signal noise always connect the cable shield to the measurement device common ground. Connect fuse for MS-80A, MS-80M, MS-60A, MS-60M, MS-40A and MS-40M. Fix the cables to prevent swinging by wind. Connect the grounding wire for power cable to prevent electrical shocks.

Analog Output Connect to data logger Refer to the installation manual for measuring the body temperature. (MS-80 only)

Current Output Connect to 4-20mA data acquisition system.



Digital Output Connect wires according to below arrangements.

