

- ISO 9060 Second Class
- IEC 17025 calibration
- 5-year warranty
- MS-40 with analog voltage output
- MS-40A with 4 ... 20 mA current output
- MS-40M with Modbus RTU output



- **MS-40** Second Class pyranometer is based on the EKO's universal sensor platform with **analog voltage output**.
- **MS-40A** Second Class pyranometer is based on the EKO's universal sensor platform with **4-20mA current output**. It is a cost effective solution for global solar radiation measurements.
- **MS-40M** Second Class pyranometer is based on the EKO's universal sensor platform with **MODBUS RTU output**.

The MS-40 pyranometers have been designed for agro meteorological networks and professional small scale PV sites where solar radiation is taken seriously. The MS-40/-40A/-40M can be used with the optional MV-01 ventilator / heater.

The MS-40 pyranometers are manufactured in a consistent way followed by strict quality inspection and performance evaluation. EKO provides a unique calibration compliant to the international standards defined by ISO/IEC17025/9847.

The sensor has a 5 years warranty with a 2 years re-calibration interval recommended and it is no longer necessary to change the desiccant.

Calculation of Solar Irradiance for M-40

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

E [W/m²] = Solar Irradiance

U [μV] = Voltage Output

S [μV/W·m²] = Sensitivity

The sensitivity **S** for for for the pyranometer is stated on the calibration certificate and the product label.

Calculation of Solar Irradiance for M-40A

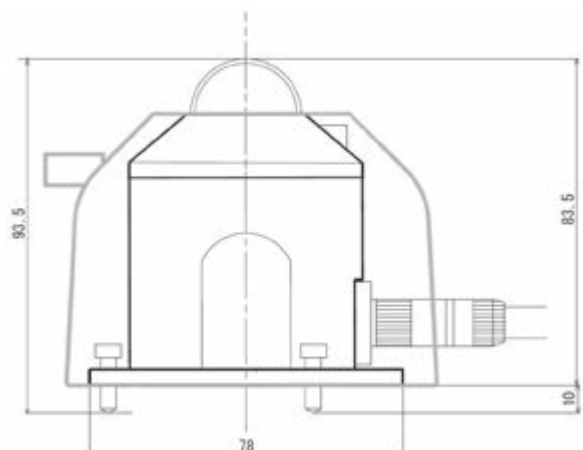
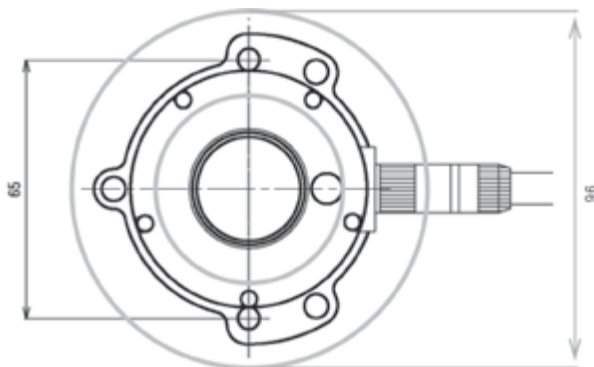
$$E [W/m^2] = (I [mA] - 4) \times 100$$

E [W/m²] = Solar Irradiance

I [mA] = Solar Irradiance Current Value

MS-40A output is set as 1 mA = 100 W/m (default setting).

Dimensional drawing



Specifications

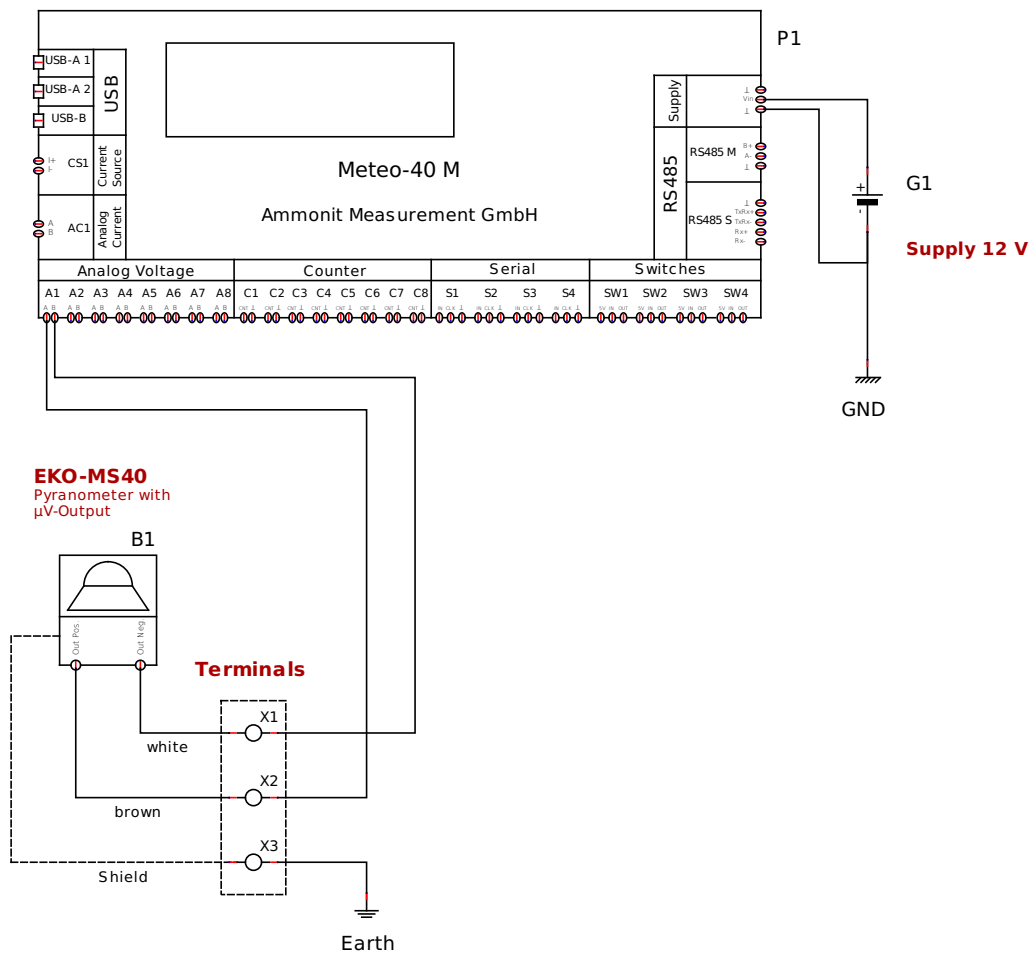
	Pyranometer MS-40	Pyranometer MS-40A	Pyranometer MS-40M
Order No.	S64111	S64113	S64115
Classification	ISO 9060 Second Class	ISO 9060 Second Class	ISO 9060 Second Class
Output	Voltage (mV)	Current (4 ... 20 mA)	Modbus RTU
Sensitivity	7 ... 14 $\mu\text{V}/\text{W}/\text{m}^2$	7 ... 14 $\mu\text{V}/\text{W}/\text{m}^2$	7 ... 14 $\mu\text{V}/\text{W}/\text{m}^2$
Resolution	-	< 0.5 W/m^2	< 0.5 W/m^2
Wavelength range	285 ... 3000 nm		
Max. irradiance	2000 W/m^2		
Response time (95%)	< 18 s		
Zero offset			
(a) thermal radiation (200 W/m^2)	< 12 W/m^2		
(b) temperature change (5k/hr)	$\pm 5 \text{ W}/\text{m}^2$		
Non-linearity @ 1000 W/m^2	$\pm 1 \%$		
Non-stability change/1 year	$\pm 1.5 \%$		
Direction response @ 1000 W/m^2	$\pm 20 \text{ W}/\text{m}^2$		
Temperature response (-10 ... +40°C)	< 3 %		
Temperature response (-20 ... +50°C)	< 4 %		
Tilt response @ 1000 W/m^2	$\pm 1 \%$		
Impedance @ 25°C	60 ... 100 Ω	-	-
Operating temperature	-40 ... +80 °C		
Power supply	-	12 ... 24 V DC $\pm 10\%$	12 ... 24 V DC $\pm 10\%$
Power consumption	-	0.08 ... 0.75 W	< 0.3 W
Cable length	10 m		
Weight	0.33 kg	0.36 kg	
Protection class	IP67		
Warranty	5 years		
Manufacturer	EKO Instruments		
Accessory		Module M83572	Module M83570
	MV-01 ventilator / heater (Order-No. S64060)		

Delivery includes IEC 17025 calibration certificate.

Connecting EKO MS-40 to Ammonit Meteo-40 data loggers

MS-40

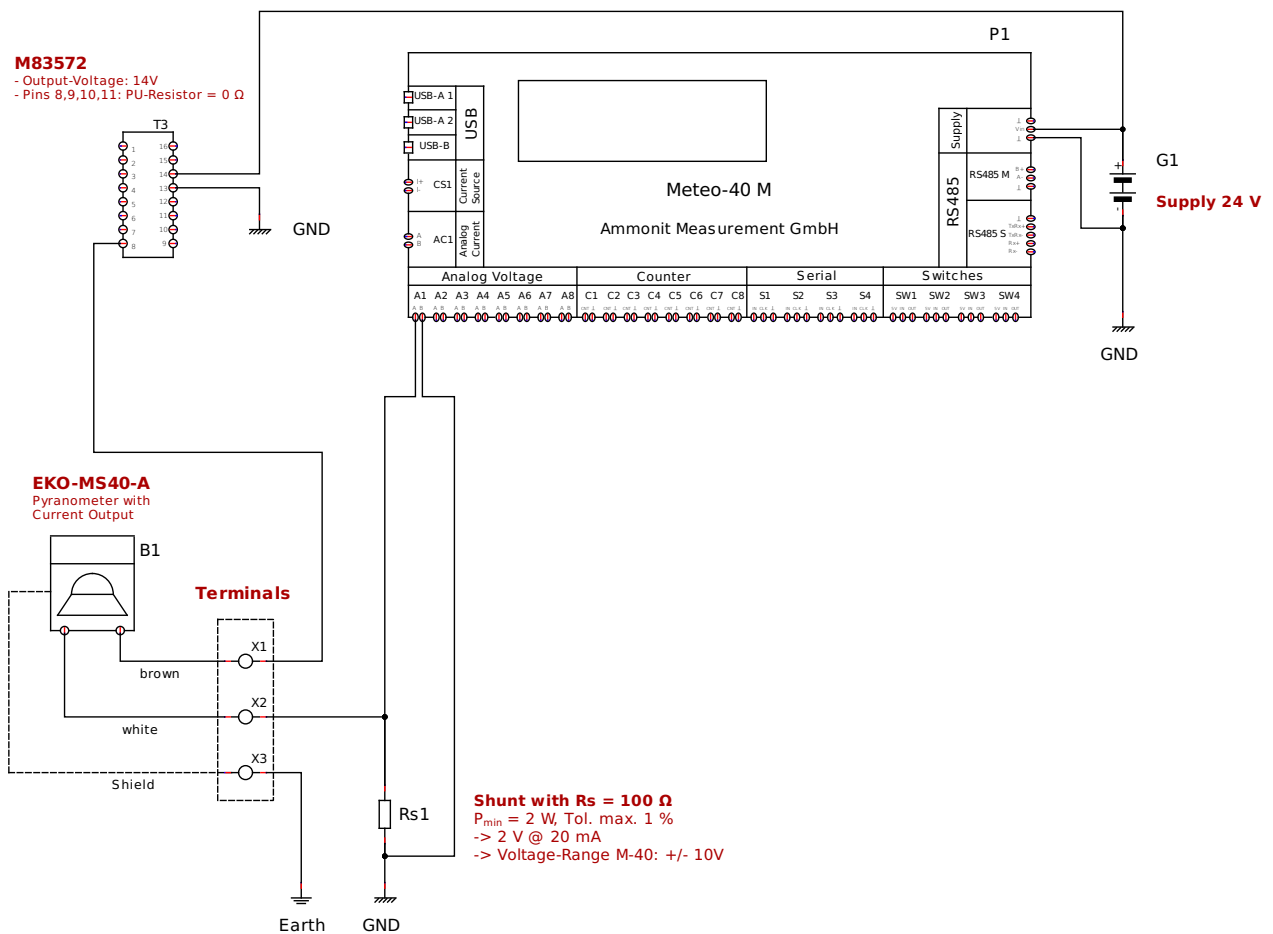
Sensor	Wire Colour (EKO)	Meteo-40 Analog Voltage
Solar irradiance Output voltage	brown (+)	Ax
	white (-)	Bx
	shield	Earth



Connecting EKO MS-40A to Ammonit Meteo-40 data loggers

MS-40A

Sensor	Wire Colour (EKO)	Meteo-40 Analog Voltage	Supply Sensor
Solar irradiance Output voltage	white	Ax	
GND		Bx	
Supply	brown		14 V DC
	shield	Earth	



Connecting EKO MS-40M to Ammonit Meteo-40 data loggers

MS-40M

Sensor	EKO Wire Color	Meteo-40 RS485 Master	Supply Sensor
Data (+)	blue	B+	
Data (-)	black	A-	
RS485 G	grey		GND
Supply	brown		12 V DC
GND	white		GND

