



Secondary standard pyranometers

Radiometer for solar irradiance measurement, according to ISO 9060 and WMO No. 8 (Part I, Chapter 7) standards. These sensors are classified as ISO 9060 Secondary Standard. With a fast response time, these sensors are ideal for users requiring high-end accuracy and reliability.

Order numb.

DPA252 (1)

DPA852 (2)

Output	μV	$4 \div 20 \text{ mA}$
Power supply	-	$7 \div 35 \text{ Vdc}$
Sensitivity	$7 \div 25 \mu\text{V}/(\text{W}/\text{m}^2)$	NA
Data logger compatibility	M-Log (ELO007-008), R-Log (ELR515), E-Log (all models)	-

Common features

Secondary Standard Pyranometer	ISO 9060 classification	Secondary Standard
	<i>Achievable uncertainty 95% confidential level (daily totals). According to WMO manual, not considering calibration errors, for well maintained instruments on clear sky days, at mid-latitude sites</i>	$\pm 2\%$
	<i>Spectral range</i>	$285 \div 3000 \text{ nm}$
	<i>Temperature response (50 K range)</i>	$< \pm 1\% (-10 \div 40 \text{ }^\circ\text{C})$ When compensated: $< \pm 0,4\% (-30 \div 50 \text{ }^\circ\text{C})$
	<i>Irradiance range</i>	$0 \div 4000 \text{ W}/\text{m}^2$
	<i>Response time 95%</i>	3 s
	<i>Directional (azimuth+cosine) error W/m^2 (@1000 W/m^2) $0 < \theta < 80^\circ$</i>	$< \pm 10 \text{ W}/\text{m}^2$
	<i>Zero offset a (response to 200 W/m^2 net thermal radiation)</i>	$< 5 \text{ W}/\text{m}^2$ (unventilated)
	<i>Zero offset b: Thermal change W/m^2 (5 $^\circ\text{C}/\text{h}$)</i>	$< \pm 2 \text{ W}/\text{m}^2$
	<i>Non linearity % (at 1000 W/m^2)</i>	$< \pm 0.2 \%$
	<i>Stability (% change/year)</i>	$< \pm 0.5 \%$
	<i>Standard built-in temperature sensor</i>	YES
	<i>Calibration uncertainty</i>	$< 1,2\% (K=2)$
	<i>Standard built-in heater</i>	YES (12 Vdc, 1,5 W)
	<i>Data provided with each sensor</i>	- Calibration certificate - Temperature dependence data - Directional response data
	<i>Recommended recalibration</i>	Every 2 years
	<i>Mounting (pole \varnothing 45÷65 mm)</i>	Using DYA034 or DYA035 arms + DYA049
	<i>Cable</i>	L = 5 m
	<i>Housing</i>	Anodized aluminum

continued



Accessories**Order numb.**

DYA035 Tilting arm for fixing DPA154, DPA252, DPA852, DPA855, DPA970 pyranometers to DYA049 collar

DYA034 Arm for fixing DPA154, DPA252, DPA852, DPA855, DPA970 pyranometers to DYA049 collar

DYA049 Mast-mounting device for \varnothing 45-65 mm pipe



DEA852 Signal amplifier for Pyranometers.
Output: 0/4 \div 20 mA, 0/1 \div 5 V
Power consumption: output + 10 mA
Power supply 10 \div 30 Vac/dc.
Requires DWAxXX cable

DEA854 Same features as DEA852.
Connection: free wires terminal

DPA250 Ventilation unit for DPA252
Power supply: 12 Vdc
Operative temperature: -40 \div 70°C



First Class Pyranometers (direct output)

Radiometer for solar irradiance measurement, according to ISO 9060 and WMO No. 8 (Part I, Chapter 7) standards. These sensors are classified as ISO 9060 First Class. With a total daily uncertainty of 5%, flat spectral response (300-3000 nm) and optimal temperature stability, this sensor represents the optimal compromise between costs and quality of irradiance measurement.

Order numb.

DPA154

Output	$\mu\text{V/W/m}^2$
Cable	L = 10 m with connector
Mounting (pole \varnothing 45÷65 mm)	Using DYA034 or DYA035 arms + DYA049
Data logger compatibility	M-Log (ELO007-008), R-Log (ELR515), E-Log (all models)



First Class Pyranometers (analogue, RS485 output)

These models have the same measuring features of the DPA154 model, but different types of outputs. The model DPA854 is equipped with an external converter for analog output. In the model DPA855 the analogue output electronics is mounted inside the sensor body. The model DPA870, in add it into the radiation, measures the air temperature inside the sensor, and it can be connected to the probe (DLE125) for the measurement of the contact temperature. The data output of the model DPA870 is RS485 using Modbus RTU[®] or TTY-ASCII protocols.

Order numb.

DPA854 (1)

DPA855 (2)

DPA870 (2)

Output	0/4÷20 mA		RS485
Protocol			Modbus RTU [®] TTY-ASCII
Programmable output			max., min., ave. (1÷3600 s)
RS485 protection			Galvanic insulation (3 kV, UL1577)
RS485 speed			1200÷115 kbps
Protection	Tranzorb e Emifilters		
Power supply	10÷30 Vac/dc	10÷30 Vdc	
Measuring range	0÷1500 W/m ²		
Power consumption	0,5 W		
Other measures	-	-	Air temp. (included) Surface temp. (DLE125 sensor)
Cable	7 pin IP65 connector	L = 10 m	
Mounting (pole \varnothing 45÷65 mm)	Using DYA049	Using DYA034 or DYA035 arms + DYA049	

continued






Common features

Pyranometer	<i>Principle</i>	Thermopile
	<i>ISO 9060 Classification</i>	First class
	<i>Spectral range</i>	300÷3000 nm
	<i>Sensitivity</i>	30÷45 $\mu\text{V}/\text{W}/\text{m}^2$
	<i>Achievable uncertainty 95% confidential level (daily totals)</i>	$\pm 5 \%$
	<i>Irradiance Range</i>	0÷2000 W/m^2
	<i>Response time 95% (sec)</i>	27 s
	<i>Zero offset: Thermal change W/m^2 (5 °C/h)</i>	$< \pm 4 \text{ W}/\text{m}^2$
	<i>Directional (azimuth+cosine) error W/m^2 (at 1000 W/m^2) $0 < \theta < 80^\circ$</i>	$< \pm 20 \text{ W}/\text{m}^2$
	<i>Non linearity % (at 1000 W/m^2)</i>	$< \pm 1 \%$
	<i>Stability (% change/year)</i>	$< \pm 1,5 \%$
	<i>Temperature response (50 K range)</i>	$< \pm 4 \%$ (-10 to +40 °C)
	<i>Operative temperature</i>	-40÷+80°C
General information	<i>Housing</i>	Anodized aluminum
	<i>Recalibration</i>	Every 2 years

Accessories

Order numb.

	DYA035	Tilting arm for fixing DPA154, DPA251.1, DPA252, DPA855, DPA870 to DYA049 collar
	DYA034	Arm for fixing DPA154, DPA251.1, DPA252, DPA855, DPA870 to DYA049 collar
	DYA049	Mast-mounting device for \varnothing 45-65 mm pipe
		DEA852
DEA854		Same features as DEA852 Connection: free wires terminal
DWA510		Cable L = 10 m for DPA854
DWA525		Cable L = 25 m for DPA854
DWA526		Cable L = 50 m for DPA854
DWA527		Cable L = 100 m for DPA854
DWA710		Cable L = 10 m for DPA855-870-863-873
DWA725		Cable L = 25 m for DPA855-870-863-873
DWA726		Cable L = 50 m for DPA855-870-863-873
DWA727		Cable L=100 m for DPA855-870-863-873
	DPA245	Occultation band for diffuse radiation (DPA154 only)
	MG2251	7 pin free female connector



Second Class Pyranometers

Radiometer for solar irradiance measurement, according to ISO9060 and WMO No.8 (Part I, Chapter 7) standards. These sensors are classified as ISO 9060 Second Class. Lighter and more compact than higher class pyranometers, this sensor is a good compromise for basic meteorological, agrometeorological and solar energy applications. Data output of the model DPA973 is RS485 using Modbus RTU® or TTY-ASCII protocols.



Order numb.	DPA053 (1)	DPA863 (2)	DPA873 (2)
Output	$\mu\text{V/W/m}^2$	0/4÷20 mA	RS485
Protocol	-	-	Modbus RTU®, TTY-ASCII
Programmable data output	-	-	max., min., ave. (1÷3600 s)
RS485 protection	-	-	Galvanic insulation (3 kV, UL1577)
RS485 speed	-	-	1200÷115 kbps
Protection	-	Tranzorb and Emifilters	
Power supply	-	10÷30 Vdc	
Power consumption	0,5 W		
Maximum irradiance	2000 W/m ²	0÷1500 W/m ²	
Cable	L = 5 m	L = 10 m with connector	
Installation (on ø 50 mm pole)	Using DYA034 or DYA035 + DYA049	Using DYA034 or DYA035 + DYA049	
Data logger compatibility	M-Log (ELO007-008) R-Log (ELR515) E-Log (all models)	-	-

Common features

Pyranometer	<i>Principle</i>	Thermopile
	<i>ISO 9060 Classification</i>	Second class
	<i>Spectral range</i>	305÷2800 nm
	<i>Uncertainty (daily totals)</i>	10%
	<i>Response time (T95)</i>	30 s
	<i>Operative temperature</i>	-40÷80°C
General information	<i>Housing</i>	Anodized aluminum
	<i>Recalibration</i>	Every 2 years

Accessories

Order numb.

	DYA035	Tilt arm for Pyranometers
	DYA032	Arm for fixing DPA053 to DYA049 collar
	DYA049	Mast-mounting device for ø 45-65 mm pipe
	DYA048	Plate for levelling DPA053 on DYA035 arm
	DYA120	Radiation shield
	DEA852	Signal amplifier for Pyranometers Output: 0/4÷20 mA, 0/1÷5 V Power consumption: 10 mA+output Power supply 10÷30 Vac/dc. Requires DWAxXX cable
	DEA854	Same features as DEA852 Connection: free wires terminal
	DWA510	Cable L = 10 m
	DWA525	Cable L = 25 m
	DWA526	Cable L = 50 m
DWA527	Cable L = 100 m	
MG2251	7 pin free female connector	



Thank you for reading this data sheet.

For pricing or for further information, please contact us at our UK Office, using the details below.



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Please note - Product designs and specifications are subject to change without notice. The user is responsible for determining the suitability of this product.