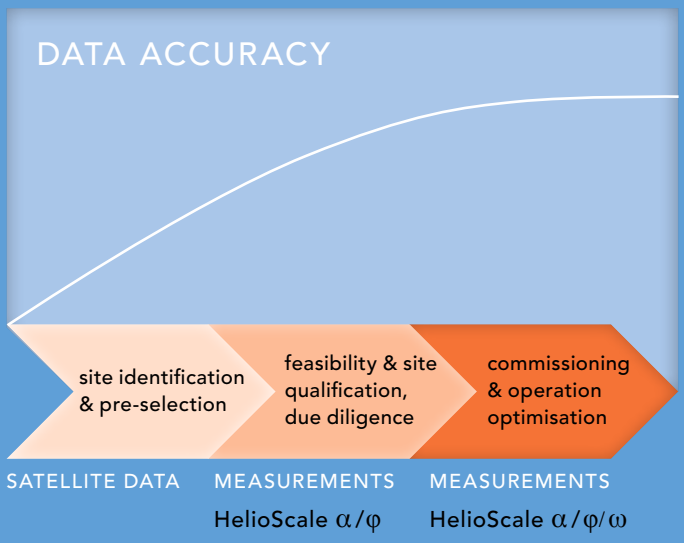
HelioScale

Measurement Solutions for Solar Radiation

HelioScale

Solar Measurement Solutions

Why HelioScale?



Reliable, high quality solar radiation data is becoming increasingly important in solar energy. Reducing solar resource uncertainty by a few per cent significantly impacts the return on investment of a solar power plant. The HelioScale series of solar measurement stations is available in 3 variants: HelioScale α (alpha), HelioScale φ (phi) and HelioScale ω (omega), which are designed to suit specific needs of Solar Photovoltaic (PV), Concentrating Photovoltaic (CPV) and Concentrating Solar Thermal Power (CSP).

The collaboration between Suntrace and Wilmers Messtechnik combines deep knowledge and scientific experience in the field of solar energy site assessment with long-term experience in design and conduction of wind, solar and meteorological measurements. HelioScale provides the perfect base for reliable development of your solar energy project.

Which system to choose?

All HelioScale turnkey measurement stations feature the blueberry COMPACT data logging system

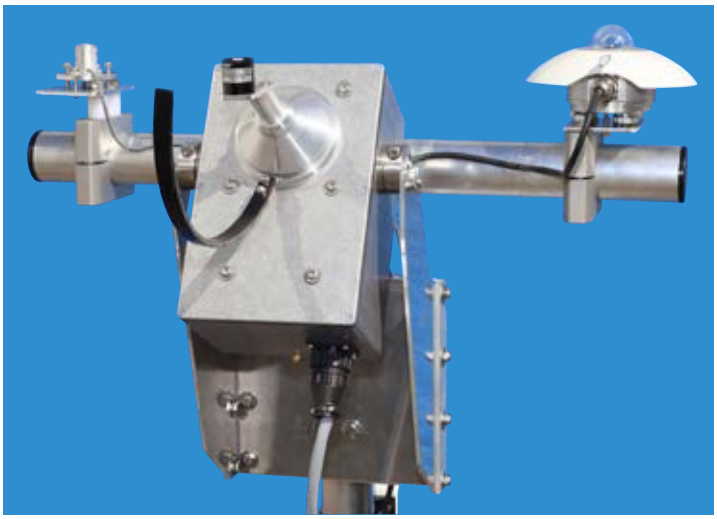
- plug-and-play data logging solution with an easy-to-use web interface
- analogue, digital and RS485 inputs
- high data security
- direct Internet access via GPRS or LAN (optional UMTS/LTE)
- automatic data transmission via e-mail, FTP, RSYNC
- integrated surge protection

HelioScale α [alpha]

HelioScale α is an all-in-one solution for PV plants. This station is equipped with a Secondary Standard Pyranometer (ISO 9060) to measure Global Horizontal Irradiance (GHI). IEC 61725 recommends the use of Secondary Standard Pyranometers to determine the Performance Ratio (PR) of PV plants. An additional silicon-based sensor in the station gives redundancy to provide an even closer PV output match. Due to its high accuracy combined with ease of cleaning and maintenance, **HelioScale α** is suitable for all stages of PV projects: feasibility studies, engineering, due diligence, bankability, operation and monitoring of PV plants.

HELIOSCALE SERIES STATIONS		FEATURES AND CONFIGURATION		
		HelioScale α	HelioScale φ	HelioScale ω
GHI – Pyranometer (ISO Secondary Standard)	W/m²	●	❍	❍
GHI – Silicon-based	W/m²	●	●	●
GHI, DIF, DNI – Rotating shadowband irradiometer (RSI)	W/m²	–	●	❍
DNI – Pyrheliometer (ISO First Class)	W/m²	–	–	●
GII (Global Inclined Irradiance) – Pyranometer (ISO Secondary Standard)	W/m²	❍	❍	❍
GHI, DIF – Shadow ball assembly – incl. 2 Pyranometers (ISO Secondary Standard)	W/m²	–	–	❍
Sunshine duration	h	❍	❍	❍
Visibility	km	❍	❍	❍
Temperature & humidity	°C / %RH	●	●	●
Barometric pressure	hPa	●	●	●
Wind speed	m/s	❍	❍	❍
Wind direction	°	❍	❍	❍
Precipitation	mm	❍	❍	❍
Snow height	mm	❍	❍	❍
Data logging system blueberry COMPACT	-	●	●	●
Autonomous power supply	-	●	●	●
Lightning protection and grounding kit	-	●	●	●
Mounting structure	-	●	●	●
Weatherproof enclosure	-	●	●	●

● standard equipment ❍ optional – not available



HelioScale φ [phi]

HelioScale φ is a robust, low maintenance and low cost solution for the measurement of GHI, Diffuse (DIF) and Direct Normal Irradiance (DNI) and is therefore suitable for PV, CPV or CSP industries. A Rotating Shadowband Irradiometer (RSI) forms the heart of the station, which allows all 3 solar components to be derived by a fast response photodiode sensor. Outdoor calibration increases the accuracy of the RSIs used in our stations. Weekly cleaning intervals, ease of operation without tracking and good accuracy makes **HelioScale φ** the most preferred choice of project developers for site qualification, feasibility studies, engineering design and financial bankability of CSP, CPV and PV power plants.

HelioScale ω [omega]

HelioScale ω is a research grade solar radiation measurement station equipped with the highest quality sensors: One pyrheliometer for highly precise DNI and optionally two broadband pyranometers mounted on a 2-axis solar tracker to measure GHI and DIF. These thermopile sensors fulfil the highest standard ISO and WMO specifications. However, the instruments require daily cleaning, hence this station is only recommended for locations with adequate man-power availability. **HelioScale ω** can be used through all the stages of project development of CSP, CPV and PV plants and is obligatory for commissioning CSP power plants.

Key features of HelioScale stations

- High quality solar radiation instruments that conform with ISO & IEC standards and follow WMO and IEA recommendations
- Robust design: ability to withstand extreme weather conditions like dust, strong rain or high humidity
- Compact & efficient layout: easy to transport, install and maintain
- Made in Germany

wilmers
Environment · Measurement · Systems

Since 1991, Wilmers Messtechnik develops and manufactures data loggers and turnkey measurement systems for wind and solar site assessment, climate research and meteorological observations.
In addition to the data loggers wilog306, blueberry NDL485 and blueberry COMPACT, Wilmers Messtechnik realizes integration of sensors and components from leading manufacturers. Many years of experience in production and installation of measurement hardware, in software and in processing of measurement data enables the team to provide qualified pre-sales and after-sales consultancy and support. A network of international partners ensures local service and technical support around the world. 3000 measurement systems from Wilmers Messtechnik have been installed on all continents. Customers are such as leading wind turbine manufacturers, wind and solar energy consultants, wind farm developers, environmental consultants, electric utilities, renewable energy and climate research institutes, universities, international NGOs, weather services and government institutions.

suntrace

Suntrace established in 2009 as a consulting company specialized on large-scale solar power plants. It advises on Photovoltaic (PV) and Concentrating Solar Thermal Power (CSP). Suntrace has obtained references as an independent expert for solar energy projects particularly in emerging solar markets such as Latin America, Southeast Asia, Middle East, Southern and Northern Africa. In total, Suntrace has advised on more than 4000 MW of PV and CSP projects in over 27 different countries.
Suntrace headquarters is located in Hamburg, Germany. The company has branches and partners in Spain, India, South Africa, Chile, Brazil, Mexico, Morocco and Namibia.
Suntrace expertise combines solar resource, engineering and financing competence with an inter-disciplinary team. Hence, the company is able to provide a holistic project development approach for large-scale solar energy projects covering a broad range of services from the initial project idea until final realization.

Wilmers Messtechnik GmbH
Hammer Steindamm 35
22089 Hamburg, Germany
phone: +49(0)40-75 66 08 98
fax: +49(0)40-75 66 08 99
e-mail: info@wilmers.com
www.wilmers.com

Suntrace GmbH
Brandstwiete 46
20457 Hamburg, Germany
phone: +49(0)40-767 96 380
fax: +49(0)40-767 96 38 20
e-mail: meteo@suntrace.de
www.suntrace.de

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