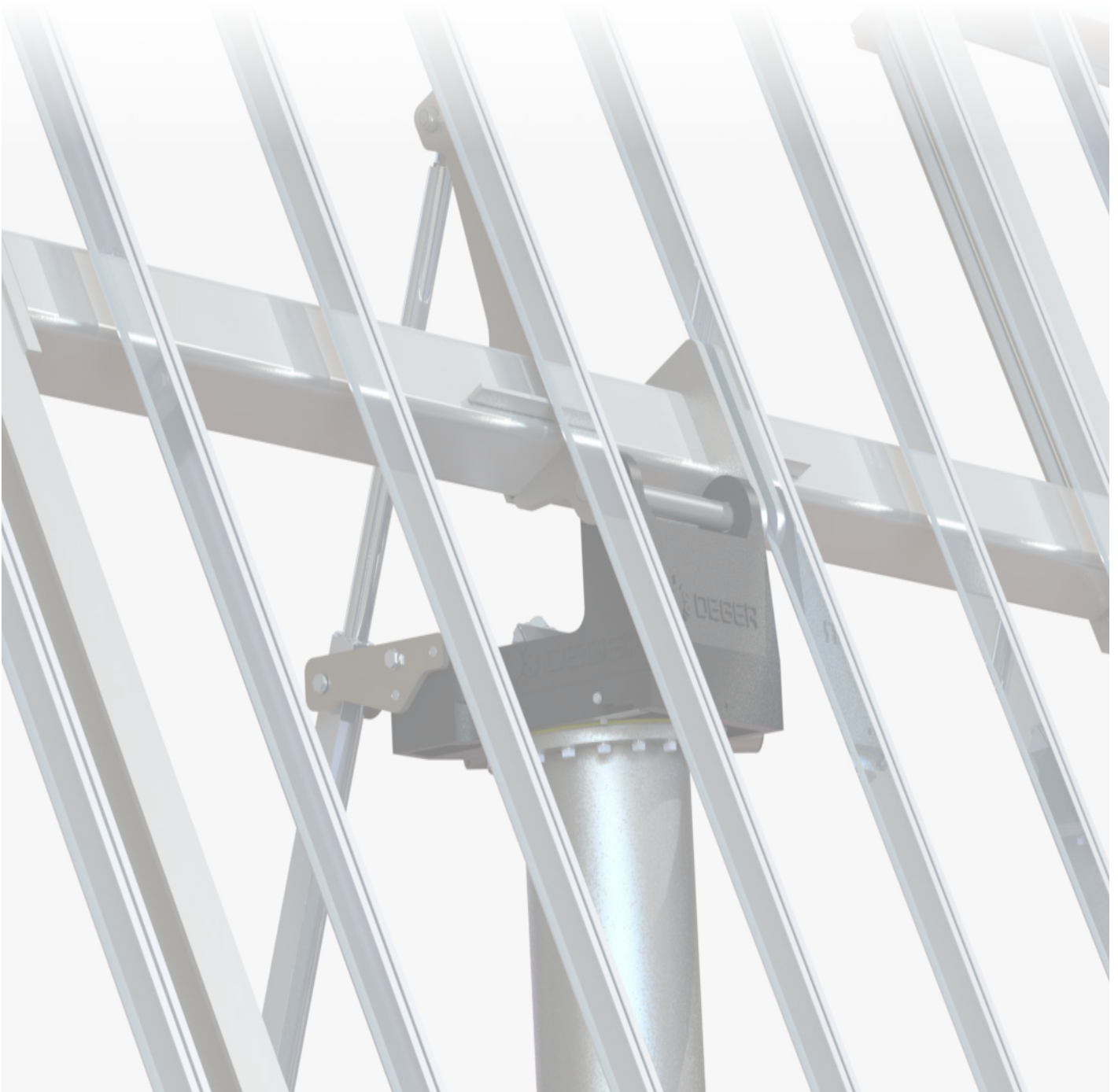


PRODUCT GUIDE

February 2017



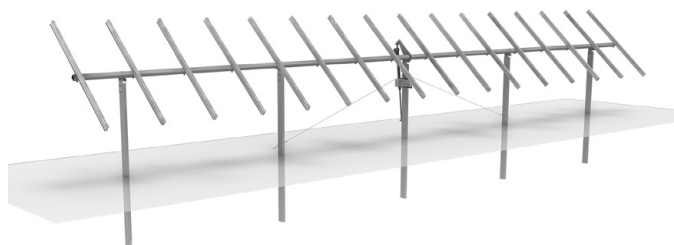
DEGERtracker single-axis

Open land and building integration

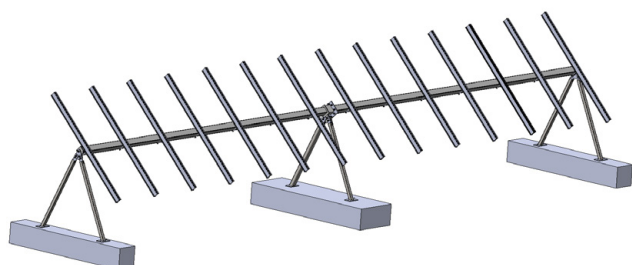
The active tracking systems from DEGER optimally adapt to the lighting conditions and with the patented MLD technology DEGERtrackers generate a higher yield as fixed tilt systems and other tracking systems. The DEGERtracker can be used on open land and building integrated. All DEGER systems can be used with all common solar modules.



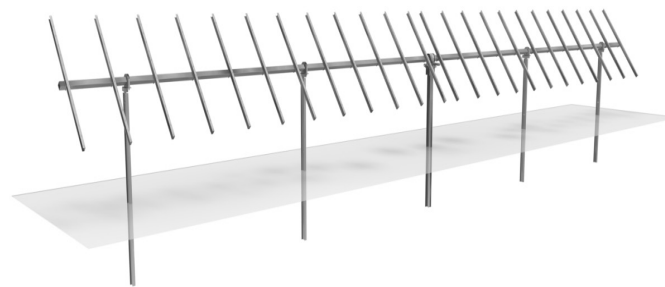
DEGERtracker 8.5 ¹⁾



DEGERtracker S70
with driven pile foundation



DEGERtracker S60H
with concrete foundation ¹⁾



DEGERtracker S100-PF-DR
with pile foundation

DEGERtracker	8.5	S60H	S70	S100-PF-DR
Rated power in Wp	500 - 1.300	6.500 - 8.300	7.500 - 9.600	11.000 - 12.320
Module area up to m ² /sqft	8,5 / 92	41,6 / 448	53,3 / 574	78,6 / 846
Max. permitted wind V _o kmh/mph ²⁾	130 / 81	167 / 105	100 / 62	110 / 68
Approx. int. consumption p.a. in kWh	1,0	15	17	5
Angles of elevation (horizontal)	30°/20°	0°	0°	0°
Rotating-/swiveling angle east-west	+ / - 45°	+ / - 45°	+ / - 55°	+ / - 50°
Open land	X	X	X	X
Building integration	X	X	-	-
Foundation Types*	CF	CF, SF	PF	PF
Mast length m/ft	-	-	-	-
Weight (without mast) kg/lbs	125 / 276	490 / 1080 (CF)	600 / 1323	project specific
Article number	1110001	S60H-CF/SF	S70-PF	S100-PF-DR
Areas of application	1,2,3,4,6	1,2,4,6	5,6	1,2,3,5,6

Foundation types

*CF = Concrete • SF = Steel • PF = Driven Pile

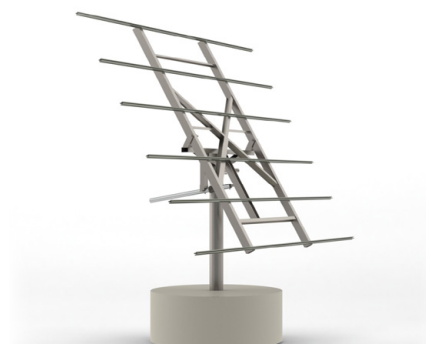
Areas of application

1 = Europe • 2 = USA • 3 = Canada • 4 = Australia • 5 = Turkey • 6 = On request

DEGERtracker dual-axis



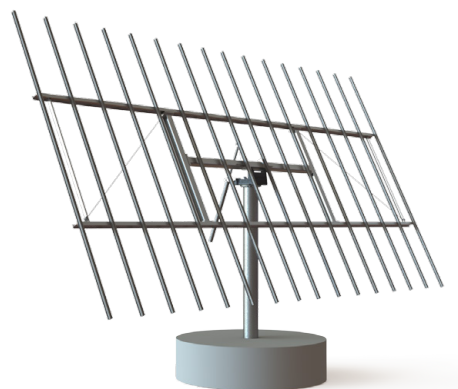
DEGERtracker 5000NT ¹⁾



DEGERtracker 3000NT ¹⁾



DEGERtracker D60H
with mast for Building integration



DEGERtracker D100 ¹⁾

DEGERtracker	D100	D80	D60H	5000NT	3000NT	3000HD
Rated power in Wp	8.000 - 12.000	6.000 - 10.000	4.000 - 7.000	4.000 - 7.000	2.000 - 4.000	2.000 - 4.000
Module area up to m ² /sqft	70,6 / 760	52 / 570	40 / 430	40 / 430	25 / 269	25 / 269
Max. permitted wind Vo kmh/mph ²⁾	102 / 63	130 / 81	170 / 106	102 / 63	102 / 63	170 / 106
Approx. int. consumption p.a. in kWh	16	14	12	16	7	14
Angles of elevation (horizontal)	0° - 80°	0° - 80°	0° - 80°	20° - 90°	20° - 90°	20° - 90°
Rotating-/swiveling angle east-west	300°	300°	300°	300°	300°	300°
Open land	X	X	X	X	X	X
Building integration	-	-	X	-	-	X
Foundation Types*	CF, SF	CF, SF	CF, SF	CF	CF	CF
Mast length m/ft	4 - 8 / 13 - 26	3 - 8 / 11 - 26	3 - 8 / 11 - 26	3 - 5 / 9 - 16	3 - 5 / 9 - 16	3 - 5 / 9 - 16
Weight (without mast) kg/lbs	970 / 2.138	930 / 2.050	890 / 1.962	650 / 1.433	600 / 1.322	650 / 1.433
Article number	MLD-D100	MLD-D80	MLD-D60H	1500001	1300001	1310001
Areas of application	1,3,5,6	1,3,5,6	1,2,3,4,5,6	1,6	1,6	1,6

The systems are designed in accordance with DIN 1055-4 (03/2005), certain models are tested under ASCE-7 and NBC, OBC (Canada). Project-specific assimilation to regional provisions.
Technical modifications reserved in the interest of progress.

1) Concrete foundation not included in delivery
2) Laid out with planing tool

Advantages that pay off

STAND-OUT TECHNOLOGY

- Surplus of 42.9% for dual-axis systems confirmed by Fraunhofer ISE
- Wind tunnel tested
- Plug-and-play installation
- Individually controlled trackers
- Simple and easy to handle control technology
- Optimal exploitation output in any weather situation
- Movements made only if leading directly to a yield increase

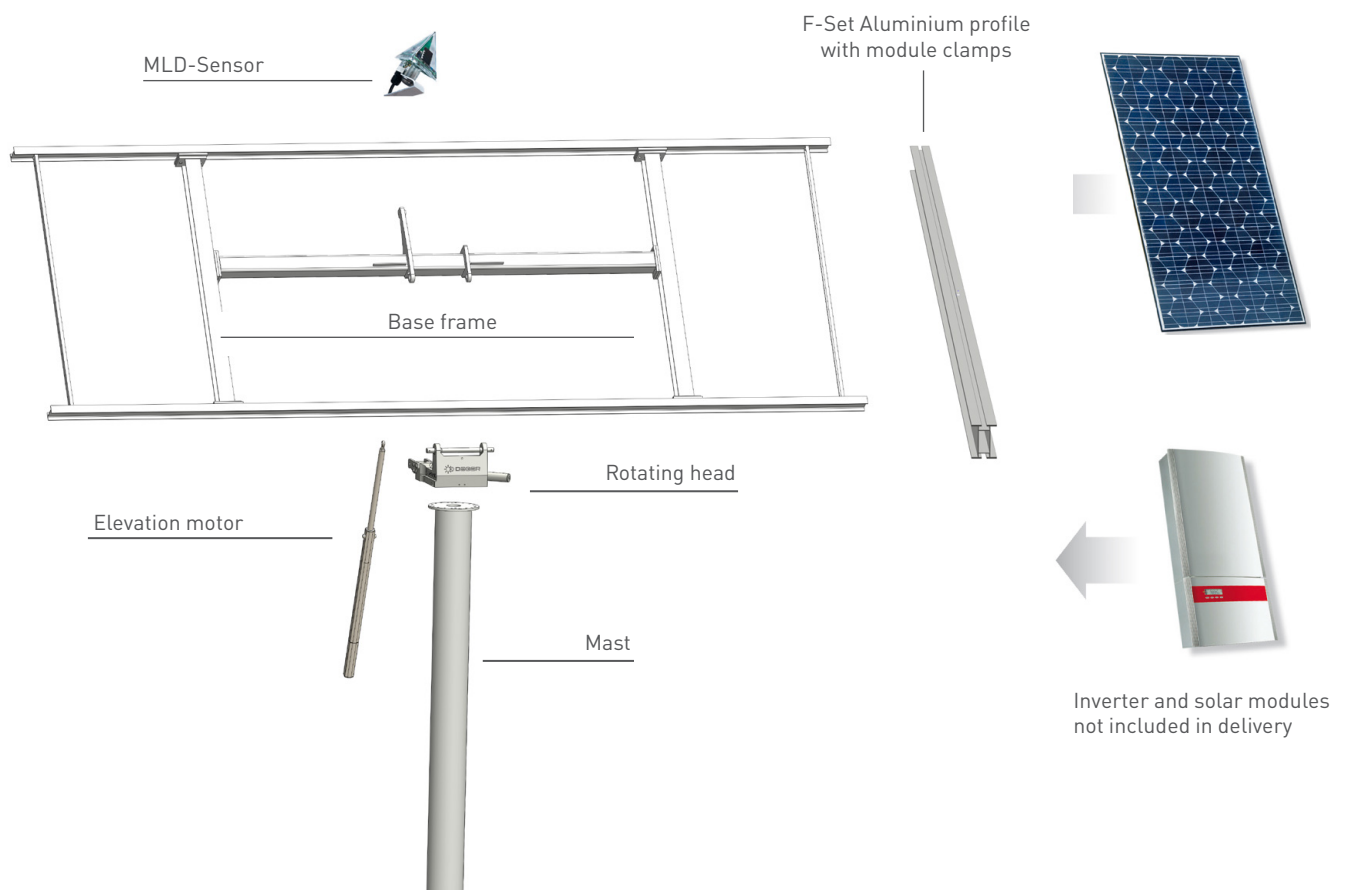
SAFE AND SUSTAINABLE INVESTMENT

- Investments and higher surpluses can be reliably calculated
- Largest product portfolio
- Fraunhofer ISE confirms 6% more gain for dual-axis systems than astronomical controlled Systems
- Minimal internal consumption and low maintenance costs

QUICK FACTS

- DEGERtracker since 1999
- More than 100.000 installed Systems
- More than 1000 MWp installed
- Business certified under ISO 9001, statics tested and certified according to UL/CSA
- Patented MLD-Technology
- Availability > 99.9%
- Worldwide delivery

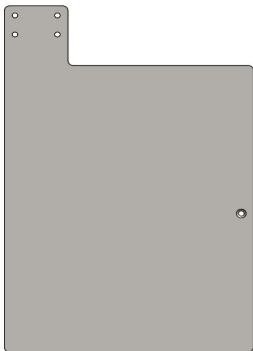
A SIMPLE STRUCTURE OF A DUAL-AXIS DEGERtracker



You can't always rely on the weather. But you can count on the MLD-Control.

DEGERtracker accessories

OPTIONAL ACCESSORIES AVAILABLE FOR DEGERtracker	ARTICLE NUMBER
Alignment Tool (for precise adjustment and control)	1990050
DEGERtracker Mini (for demo-purpose)	1990005
Snow Sensor (detects and discards snow)	1900007
Pendulum for Wind-guard	1990008 / 1990009
Central Control Box (CCB) III with Joystick	1990003
Steel-Foundation for DEGERtracker (foundation without concrete)	on request
Inverter Holding Plate	on request



Inverter Holding Plates



Central Control Box (CCB)



Snow Sensor



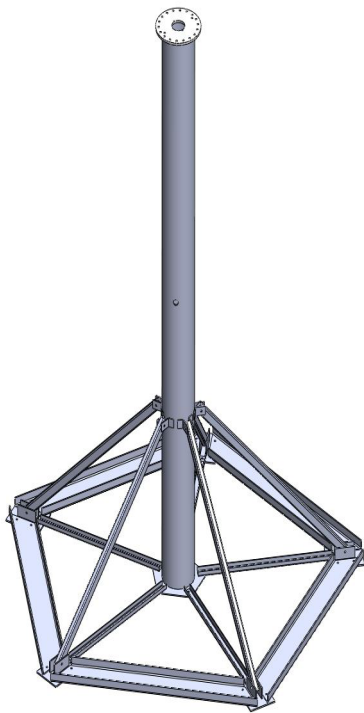
DEGERtracker Mini



Alignment Tool



Pendulum for Windguard



Steel-Foundation*

* not available for every country

MLD-Control

How does the mld-Control work?

The MLD-Control (Maximum Light Detection) adjusts the solar modules quickly, accurately and efficiently to the most energy-loaded positions in the sky. The core of this technology is the patented MLD-sensor.

The MLD-Sensor continually measures the intensity and direction of incoming light, thereby taking into account direct solar irradiation and diffused light penetrating clouds, as well as light that is reflected by snow, water or bright rock. The MLD-Control moves the solar modules to the exact position where they can capture the maximum global irradiance.

In order to be able to calculate the best position of the solar modules, two reference cells inside the MLD-Sensor deliver values which are processed and evaluated by the integrated logic chip. A differential amplifier controls the transition from the logarithmic characteristic during strong solar irradiation, to a linear characteristic curve during low currents as they occur in diffused light. The logic module places a much higher value on the linear characteristic line than on the logarithmic one. This leads to a significant increase in the readjustment accuracy, at decreasing brightness. Additionally, the differential voltage is charged with a load, whereby the cut-off threshold is set down to around 30 watts per square meter, and thus far into the evening hours.

In order to prevent both drives in dual-axis systems from running simultaneously, the system is designed so the east-west (azimuth) drive has priority over the north-south (elevation) drive.

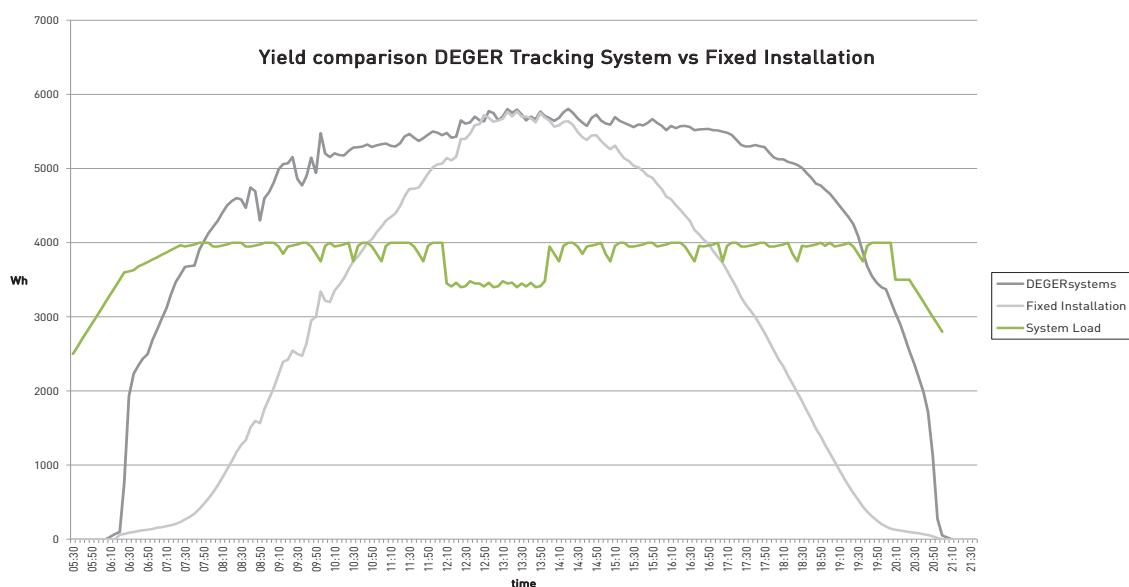
The MLD-Control in the solar park:

When installing several DEGERtrackers, each system is equipped with a MLD-Control.

As such, a central PLC-controller and the wiring with data lines are unnecessary. Even with changing levels of cloud cover, the MLD-Control places each single DEGERtracker, located in the solar park, into its best and most efficient position.

According to the irradiation, single systems in solar parks can be adjusted differently from each other so every single system gains the highest possible energy yield.

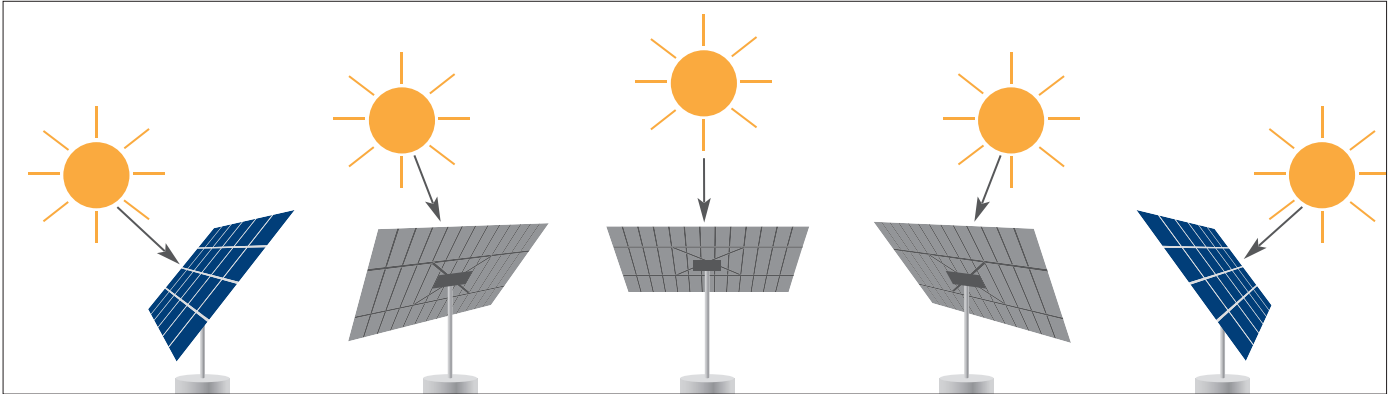
The patented control MLD-Sensor, awarded the Baden-Württemberg Prize for Innovation in 2001, has been continuously improved and is used more than 150,000 times worldwide.



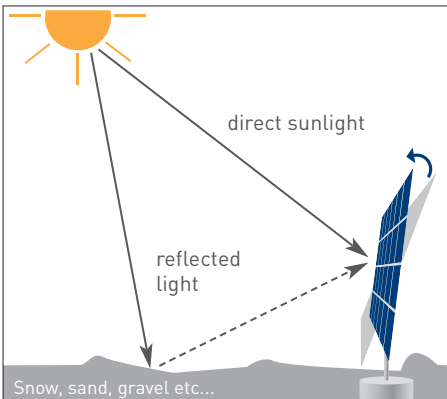
The results are clear:

Over the course of a day, a DEGERtracker (dark grey line) covers the energy demand of a small business enterprise (green line), and even produces a large surplus. Owing to this surplus, it is possible to charge gently over a long time if a battery storage system is used or depending on the country, an additional feed-in tariff can be achieved.

The efficiency of a solar park depends on how much energy the solar cells are able to collect. The intelligent control of the DEGERtracker guarantees the optimal utilization of irradiation.

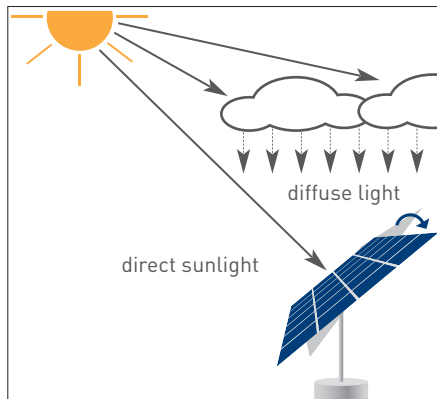


Sunshine: The DEGERtracker directly faces the sun all day.



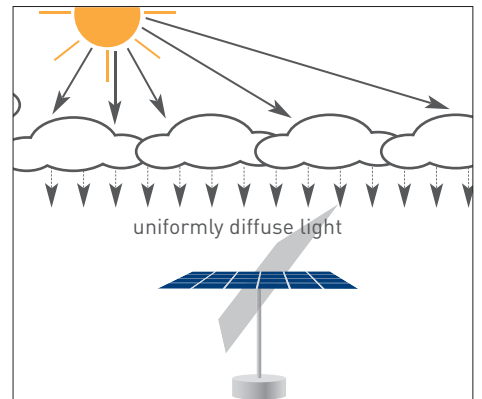
Reflective surfaces:

The DEGERtracker uses direct solar irradiation and reflected light.



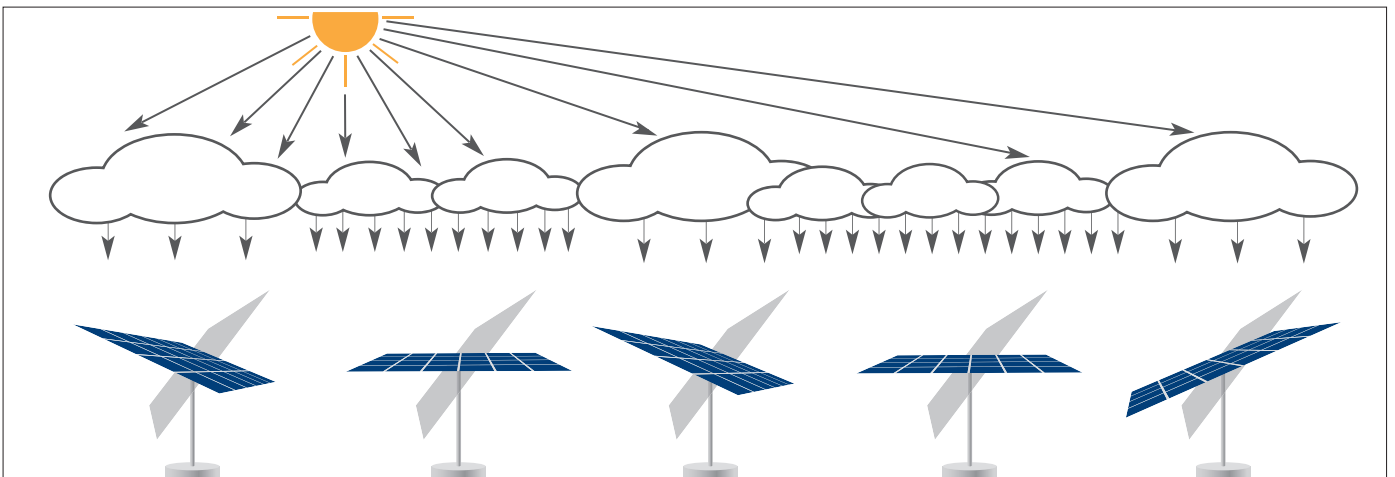
Partly cloudy:

In addition to direct solar irradiation, diffused light is also used to maximize yield.



Overcast sky:

The DEGERtracker catches all diffused light by moving into a horizontal position.



Varying light conditions: Light conditions in solar parks may vary for each DEGERtracker, due to varying levels of cloudiness.

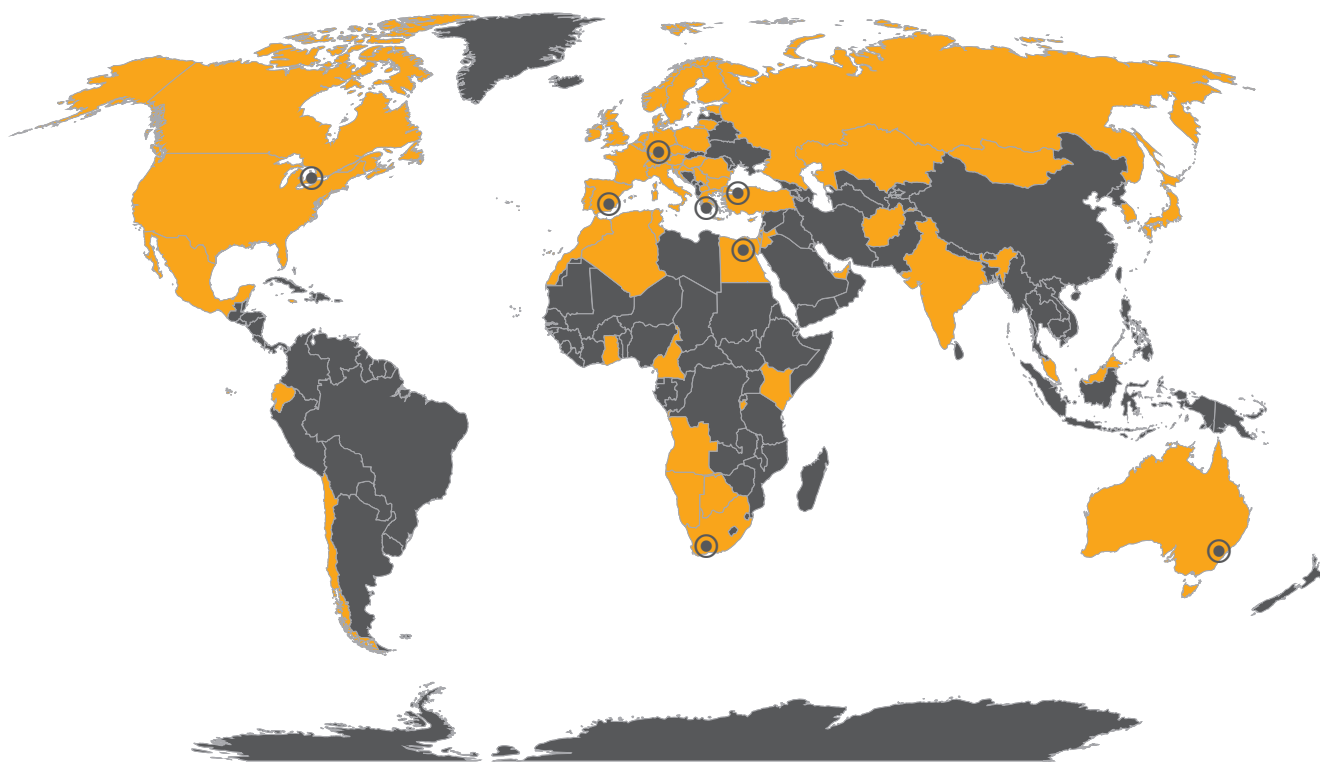
The individual control makes sure every DEGERtracker is optimally oriented to the brightest source of irradiation. This guarantees the highest energy yield possible.



MLD - technology



Astronomical control



- Sales and production locations
- Installed DEGER systems

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