

# DEGERconecter Control System for the DEGERtraker

date 02/07

## Accurate adjustment ...

The DEGERconecter always adjusts the solar installation to face the brightest point in the sky. It includes the entire system control.

## ... Maximum power yield

During times of sunshine the module surface is accurately adjusted to face the sun. During times of overcast weather, the DEGERconecter automatically adjusts to face the point with the strongest global radiation.

## A control system to rely on.

The patent-protected DEGERconecter control was awarded the inventor's prize of the federal state of Baden-Württemberg in 2000.

## Description of DEGERconecter functions

Two sensor cells in the DEGERconecter supply reference values which are evaluated by the logic device, and which provide the basis for the adjustments of the module surface in the course of the day. A third sensor cell is attached to the back of the DEGERconecter to reset the installation in the morning. Depending on the irradiation intensity, a differential amplifier controls the transition from the logarithmic characteristic curve during strong irradiation to a linear characteristic curve during low currents in diffuse light. That means that the logic device accepts a much higher value for the linear characteristic curve than for the logarithmic characteristic curve. This leads to improved adjustment accuracy in dimming light. A load is added to the differential voltage, moving the switch-off threshold further into dusk, to ca. 30 W/m<sup>2</sup>.

For an additional  
yield of up to 45%

Only possible  
with the patented  
system control  
DEGERconecter.

Control System  
for  
DEGERtraker  
and  
TOPtraker®

More sun for the money

## Drive control

The drive is controlled directly - and without requiring additional parts - by the MOSFET bridge circuit, which is integrated in the DEGERconecter. The bridge is characterised by a very low closing resistance. To avoid overload of the motor and the DEGERtraker's structure, a current limiter was integrated into the system. This current limiter functions dynamically, i.e. the motor is switched off as a response to overload (e.g. frozen or blocked drives). As soon as the drive works again, the system is reset automatically.

## Benefits

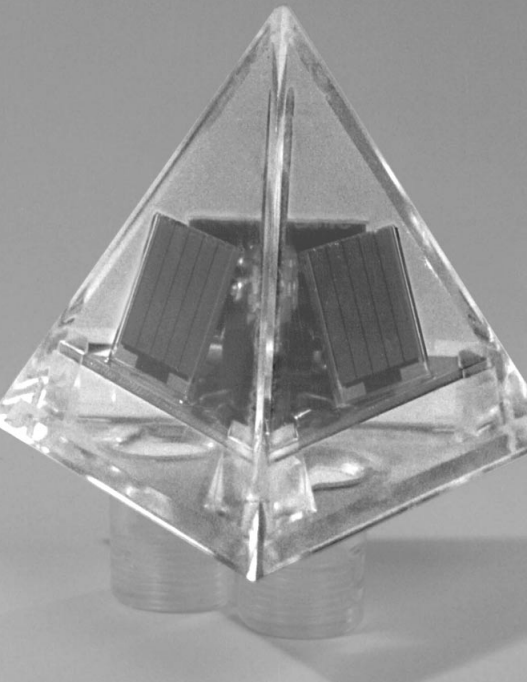
- No computer with high energy consumption required
- no rotation angle potentiometer, relay, step motors ... required
- no networking with data lines required
- the automatic drive does not contain any electromechanical parts
- little cabling required for large solar parks
- simple, easy-to-use control technology
- efficient utilisation even during cloudy weather
- only makes movements which directly lead to increased power yield.

## Available at any time:

From your solar equipment retailer.



## Important functions.



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### DEGERconecter technical data

<b>Input voltage</b>	18...50 VDC			
<b>External input fuse</b>	5 Ampere			
<b>Internal power consumption at night</b>	0 Watts			
<b>Internal power consumption control mode</b>	max. 0,03 Watts			
<b>Input protection</b>	reverse polarity protection diode max. 5 A			
<b>Output voltage</b>	see input voltage			
<b>Output on motor side</b>	short-circuit proof, reverse polarity protected			
<b>Motor protection</b>	overload recognition, current limitation			
<b>Switching capacity loss-free</b>	4 Ampere			
<b>Peak switching capacity</b>	9 Ampere			
<b>Adjustment accuracy in sunshine</b>	< 1°			
<b>Adjustment accuracy in diffuse light</b>	< 6 %			
<b>Measurements</b>	edge length 80 mm			
<b>Weight</b>	90 gr			
<b>Energy converter</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>V</b>
<b>Input voltage</b>	9...34 VDC	24 V (20...30 VDC)	80...380 VDC or 80...265 VAC	
<b>Connection</b>	independent of polarity			
<b>Output voltage</b>	22 VDC			
<b>Power consumption max</b>	3 Watts	20 Watts	5 Watts	20 Watts
<b>Internal power consumption control mode</b>	0,2 Watt			
<b>Output on motor side</b>	short-circuit proof			
<b>Measurements</b>	130 x 130 x 80 mm			
<b>Output on motor side</b>	440 gr	600 gr	570 gr	600 gr
<b>Input external drive system</b>	no			jes

### DEGERconecter: the new control system for the DEGERtraker.

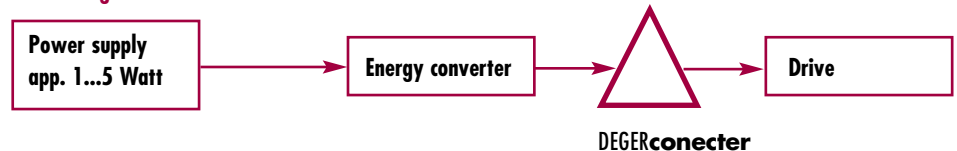
During times of sunshine, the module surface is accurately pointed at the sun.

During times of overcast weather, the DEGERconecter adjusts the module to face the point with the strongest global radiation.

### Tasks of an energy converter

The energy converter exploits wide voltage ranges of solar modules, battery systems and the grid for the DEGERconecter. The power for the control and drive systems may also be supplied without a battery, by direct connection to solar modules with below one Watt power.

### Circuit Diagram



During dawn, the DEGERconecter recognises the brightest spot in the sky and tries to reset the installation. The power supply module for the control system starts by producing 0.01 Watts or less, and as soon as the DEGERconecter attempts to control the electric motor, the voltage on the solar module breaks down. To avoid the DEGERconecter switching the drive on and off all the time and to achieve quick resetting, DEGERenergie has developed the energy converter. The energy converter collects even small power inputs from the solar module (which are too small to be fed into the grid) in a high performance condenser and makes this energy available to the DEGERconecter. The DEGERconecter is thus able to reset the installation to face the brightest spot even before the modules produce enough energy to be fed into the grid. To avoid both drives from working simultaneously, the energy converter gives the east-west drive priority over elevation. The energy converter also ensures that no more than ca. 1-3 Watts is taken from the solar module while the drive is running. The control does not use any energy during the night.

### Power supply

- directly from the solar module or string,
- from a battery for stand-alone-systems,
- from the AC grid,
- or from an additional 1-5 Wp solar module for self-sufficient systems.

No liability for printer's error.  
Subject to technical changes for future improvements.

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More sun for the money