

Focus on

# Solar Tracking



[www.solar-tracking.com](http://www.solar-tracking.com)

**LINAK**®   
WE IMPROVE YOUR LIFE

# Improving energy efficiency

Global warming and the drive to minimise greenhouse gas emissions has put the focus on how to make the most of natural energy sources. The sun and the wind are freely available almost everywhere in the world and electric actuators can help improve the exploitation and efficiency of these sustainable sources of energy.

Solar tracking is an obvious way to improve the efficiency of solar power plants. As the sun moves across the sky, an electric actuator system makes sure that the solar panels automatically follow and maintain the optimum angle to make the most of the sunbeams.

In recent years the TECHLINE™ team of engineers and consultants have given solar tracking their special attention. The well-proven reliability and long maintenance-free lifetime of LINAK actuators even under extremely rough condition make TECHLINE electric actuator solutions particularly well suited for this kind of application.

Flexibility is a keyword. You get excellent stepless positioning and feedback to your control system - both digital and analogue. When the main power is not available, LINAK actuators can run on battery backup and manual override is also available.

## A Knowledgeable Partnership

Multi-level cooperation with our customers is extremely important, for the benefit of both LINAK and the customer. Partnership is the driving force behind R&D, after sales, logistics, manufacturing and marketing.



## Reliable operation for years and years

The photovoltaic solar tracking system has an expected lifetime of 25-30 years and amortises itself within 4 years (on average). TECHLINE actuator systems can easily meet these demands and as LINAK electric actuators are maintenance-free you can expect full return on your investment.

Creating value for our customers – by cooperating with LINAK you get:

- Dedicated worldwide sales and service teams in more than 30 countries.
- Quality actuator solutions developed to meet the harsh environments to which solar parks are exposed to.
- Complete and simple solution from one supplier. As an option our actuators come with embedded Modbus technology for ease of communication and less component complexity.





# Actuators with embedded Modbus communication improve return on investment

Modbus is a well-known communication technology that has been on the market for years. Modbus simplifies the communication, meaning you can connect several solar trackers in serial and thereby eliminate the need for lots of signal cables and still control the whole park from a central point. As the first actuator manufacturer LINAK is embedding this protocol directly in the actuators LA35 and LA36. The advantages are many:

## Lower investment

- Less complex system
- Less cables due to BUS topology
- Less need for I/O boxes
- Less programming time due to standard communication language
- Less installation time as the number of components are reduced and the control of the solution is embedded
- Everything programmable and controllable from a central controller
- One scalable solution for different sizes of installations

## Longer lifetime

- Electronic overload protection protects the actuator. The current can be adjusted in both directions.
- Lowering of speed and soft-start and stop reduce the wear on mechanical parts
- Temperature surveillance and alarm
- Hall potentiometer (non contact potentiometer)

## Knowledge

At LINAK we focus on our core competence – we design actuator systems. But we do more than this. We want to understand our customers' business by focusing on the individual customer's needs, market intelligence and application know-how.



# Imagine...

*...if LINAk could reduce your maintenance costs by 50%?*

## Lower maintenance and operational costs

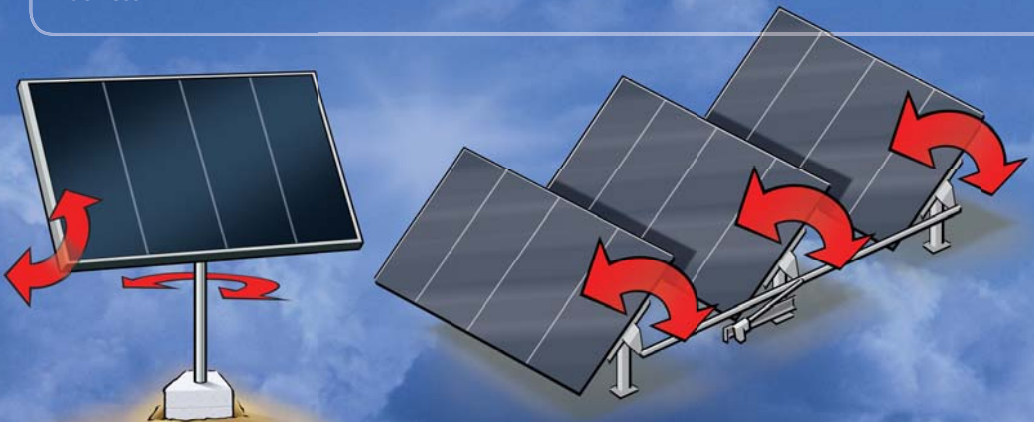
- Less components
- Maintenance-free mechanics
- Easy integration with SCADA systems through BUS interface
- Integrated diagnostics enable preventive maintenance. E.g. log of current, cycles and temperature
- Remote monitoring of installation by use of an Ethernet-BUS gateway

## Improved yield of PV installations

- Accurate positioning of solar panels or mirrors improve return of investment
- Enhancement of solar algorithm from a central point

### What is Modbus

Modbus Protocol is a messaging structure developed by Modicon in 1979. It is used to establish master-slave communication between intelligent devices. It is a de facto standard, truly open and the most widely used network protocol in the industrial manufacturing environment. It has been implemented in different devices to provide reliable data transport between devices.



# Actuator for solar tracking

## LA36 actuator - reliable and tough

The LA36 actuator is our most solid and powerful actuator designed to operate under extreme conditions. A very strong alternative to hydraulic solutions and ideal for a wide range of solar and agriculture applications. The obvious choice for medium sized trackers. This actuator has a very high self-locking ability.



### LA36

- Max. thrust up to 10.000 N
- Max. speed up to 0.3 - 2.5 mm/sec
- Embedded electronic possibilities as ex. Modbus
- Standard stroke 100 - 999 mm
- Heavy-duty aluminum housing for harsh conditions
- Protection class IP66 / IP69K
- Integrated brake, high self-locking ability
- Voltage 12, 24 or 36 V DC
- Hall sensors or potentiometer for relative or absolute feedback
- End-stops: slip clutch or built-in limit switches
- Solid metal construction
- Hand crank for manual operation
- Salt and chemical tested
- High-pressure cleaning resistant

## LA35 actuator - flexible and powerful

The LA35 actuator is a new member of the TECHLINE™ family. It is characterised by its robust design allowing the actuators to be used in harsh and extreme conditions. The LA35 actuator is designed to meet the challenges in industrial applications including solar tracking.



### LA35

- Max. thrust up to 6.000 N in push and up to 4.000 N in pull
- Max. speed up to 0.3 - 3 mm/sec
- Embedded electronic possibilities as ex. Modbus
- Heavy-duty aluminium housing for harsh conditions
- Protection class IP66 dynamic, IP69K static
- Stroke up to 600 mm
- Voltage 12 or 24 V DC
- Easy to use interface – with integrated power electronics for direct connection to control system
- Potential free limit switches as an option
- Hall sensors or potentiometer for relative or absolute feedback, regardless of the stroke length
- Built-in limit switches and brake

# Understanding your needs

## Typical needs in the solar tracking industry

The conditions are very tough with UV, heat, wind, rain and dust

The tracking system is critical to maximising the output of the solar panels

The tracking system needs to be operated even if power is unavailable

The tracking system needs to be controlled stepless

Need for a good partner when developing the tracking system

Need to be able to offer special solutions

## LINAK offers:

High IP protected, aluminum housing, stainless steel piston rod and mounting fixtures

LINAK actuators are very reliable. Integrated alarm options are available

All LINAK actuators gives accurate positioning and can run with battery, manual override is also available in some of our solutions

We offer excellent positioning and feedback, both digital and analogue, directly to your control system, ex Modbus communication.

LINAK offers complete solutions and has a worldwide sales team with focus on solar

LINAK offers a high degree of flexibility:  
- small quantities  
- customised solutions

## Robust and powerful

LINAK products are reliable products, made to last! High quality is the trademark of LINAK and an element of the highest importance to us.



## 100% function test

The LINAK Group has extensive test facilities. All products go through a 100% function test before leaving the factory.

Our products undergo thorough climatic, electrical and mechanical testing.

### **Climatic testing:**

- Extreme temperatures
- Rapid temperature changes
- Salt spray
- Chemicals
- Ingress production

### **Electrical testing:**

- Power supply
- Power & signal cables
- Control signals
- Electrical immunity

### **Mechanical testing:**

- Vibration
- Shock
- Bump



## Global presence

LINAK has a well-developed sales and service organisation in Europe, America, Asia and Australia. Therefore, we can assist you and your customers locally, under the global sales concept idea: **Be global, act local**

**For further information, please visit our websites:**

[www.solar-tracking.com](http://www.solar-tracking.com)

[www.linak.com/techline](http://www.linak.com/techline)

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