Lenze

i650 motec variable frequency drive

The smallest decentralized control cabinet in the world

The decentralized complete solution for future-proof machines

With the **i650 motec,** Lenze is launching a **new generation of decentralized** variable frequency drives, combining state-of-the-art drive technology with intelligent control and maximum integration in a compact housing. Based on the proven i550 motec, the i650 offers an extended range of functions that opens up completely new possibilities. **Integrated Logic PLC, positioning** and safety technology make the i650 motec the ideal solution for modular, flexible and energy-efficient drive modules.

Thanks to its compact design and integrated functions such as **IO-Link master, power recovery and safety,** the i650 motec replaces components in the control cabinet. This frees up space in the control cabinet or, in some cases, even replaces a small control cabinet.

Whether for **conveyor lines, rotary tables, industrial pumps or hoists** – the new drives can be used for a wide range of applications and significantly reduces both energy consumption and operating costs.

More value. Less effort.

The i650 motec offers a combination of intelligent functionality, efficient integration and simple handling – which pays off for you in many ways:

- **Integrated Logic PLC** for standalone applications
- **Table-based positioning –** also sensorless
- Extended safety functionality via **CIP Safety,** soon Profisafe & FSoE
- **IO-Link master** for smart sensor integration
- **Power feedback** without external hardware as **standard**
- **Reduction** of installation effort and control cabinet components
- **Onboard Multi Ethernet** reduces the number of variants
- Wall or motor mountable in **IP66**
- Energy-efficient overall system with **IE5/IE6** motors
- **Fully pluggable –** errorfree and quick installation

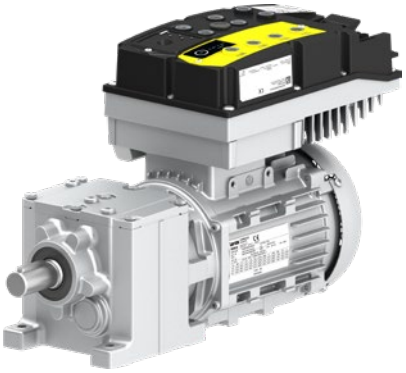
Integrated intelligence directly in the field

Thanks to the **integrated Logic PLC,** independent applications can be mapped directly in the drive. This eliminates the need for a separate controller and reduces complexity in the control cabinet.

Position control is performed directly in the device – without the need for external controllers or sensors in connection with Lenze IE5/IE6 motors. The Logic PLC supports modularization and facilitates the reusability of application modules. This speeds up commissioning and reduces the need for skilled personnel.

Your advantages:

- Sequential or cascade control without an external PLC
- Direct processing of sensor and actuator data via IO-Link
- Support for modularized, autonomous machine modules
- Faster time to market for your machine
- Relief for higher-level control systems
- Simple programming via the Lenze PLC Designer



Positioning with precision

Sensorless without encoder
The integrated positioning function makes the i650 motec the ideal choice for applications with dynamic motion control. **With table-based positioning** and **touch probe function**, complex motion profiles can be easily implemented.

Particularly noteworthy are:
- **Sensorless positioning** with synchronous motors
- **Relative and absolute positioning** possible
- **Motion profiles** without additional hardware

Safety first

Integrated CIP safety
The i650 motec has **scalable**, **integrated safety technology** for maximum machine and personal safety:

- **Currently STO over CIP**
- **Planned until the end of 2026: CIP, PROFISAFE & FSoE with the functions STO, SS1 , SBC, SLS, SMS, SSM**
- **No additional safety modules** required
- **Sensorless safety** saves costs and space
- Complies with **EN ISO 13849** and **IEC 61508**

This reduces wiring effort, saves on external hardware and makes your machine more future-proof.

Efficiency that pays off

Energy-efficient right from the start
The i650 motec is not only intelligent, but also thoroughly **energy-efficient**. Every device is **regenerative** as standard – an integrated regenerative module feeds regenerative energy directly back into the mains. This eliminates the need for **external brake resistors,** saving energy, installation time, and costs.

Three decisive efficiency factors:
- **Integrated energy recovery:** Reduces energy losses, saves on additional components
- **EASY System Designer:** Intelligent drive design avoids oversizing, enables up to 30 % energy savings
- **Lenze drive package:** Optimal interaction of drives, IE5/IE6 motor and g500 gearbox

The smallest decentralized control cabinet in the world – directly in the field

The i650 motec is easy to install - thanks to standardized connector technology, there is no need for time-consuming wiring. Advantages for installation and operation:

- **Plug & play:** error-free, quick installation without the need for a specialist
- **Reduced installation time:** thanks to integrated functions, no installation of external components such as IO-Link masters or safety modules
- **Minimized sources of error:** thanks to pre-assembled plug connections
- **IO-Link master:** direct connection of intelligent sensors and actuators
- **Multi-Ethernet onboard:** reduces the number of variants and simplifies warehousing

This unique combination makes the i650 motec a compact allrounder – **the smallest decentralized control cabinet in the world.**

One drive, many possibilities

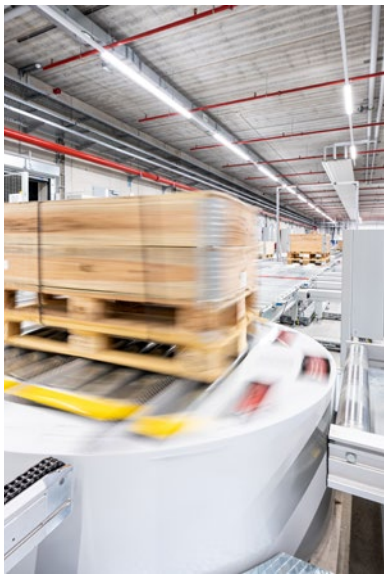
The i650 motec is suitable for a wide range of decentralized applications. In conveyor technology, it stands out for its simple installation, high energy efficiency and a sensorless positioning function. In airport logistics, it ensures reliable motion control and process reliability even at high speeds thanks to IO-Link data. For pumps, fans and compressors, it scores points with its robust design and the elimination of brake resistors thanks to its energy recovery function.

Typical applications:

- Conveyor and roller conveyors
- Rotary tables and swivelling axes
- Scissor lift tables and lifting units
- Industrial pumps, fans, blowers
- Packaging machines, winders, indexing conveyors gate drives
- Self-sufficient machine modules

Industrial pumps

- Self-sufficient pump element **without external PLC**
- Energy saving due to **regenerative power supply without brake resistors**
- Motor mounting up to 45 kW **saves space in the control cabinet**



Roller conveyors

- **Significantly shorter time to market** for new systems thanks to self-sufficient machine modules
- **200 % starting torque** for large loads
- Small start & stop ramps guarantee **higher throughput**

Conveyor technology: telescopic conveyors

- **Easy installation** thanks to plug-in technology
- Self-sufficient application **without control cabinet thanks to integrated Logic PLC**
- Easy commissioning thanks to **IO-Link master**

Learn more