

Conveyor ready

Lenze i500 conveyor solutions



No challenge is too great nor single application too small. From industrial plants to OEMs to material handling and logistics centers, Lenze i500 conveyor solutions are hard at work. Versatile and robust, our industrial drives are cost effective and low maintenance. Whatever your specific application requires, Lenze has the drive to match form, fit and function.

i500 drives are available in IP20, NEMA 1, as well as NEMA 4X versions, ready to mount where you need them. NEMA 4X models also feature an optional, lockable disconnect switch to service the motor right at the conveyor.

The NEMA 4X models can also be equipped with optional 22 mm operators which can be used for functions such as START/STOP and potentiometers for speed control for ease of operation by gloved workers.



i500 drives are compatible with both induction and PMAC motors, and have been employed successfully in Motorized Drum Roller (MDR) applications, keeping pace with design trends in the intralogistics industry.

i500 inverters can also be equipped with optional WLAN communication modules for ease of diagnostics or programming when mounted in hard-to-reach locations.

With a wide range of communication options, i500 is also ready to integrate into your choice of upper level controls vendor:



- CANopen
- EtherCAT
- EtherNet/IP
- IO-Link
- Modbus
- PROFIBUS
- PROFINET
- Modbus TCP/IP
- POWERLINK

Input Voltage/Power:

- 120 V • 230 V • 400/480 V • 600 V
- 0.33 hp (0.25 kW) to 150 hp (110 kW)

Features:

- Programmability
- Sequencer mode
- Parameters grouped by function
- Hassle-free installation
- Quick commissioning
- Diagnostics
- Quick reset to default or OEM settings



To maximize energy efficiency for conveyor solutions, the i500 motec is integrated with a regenerative energy feedback mode that reduces energy consumption in dynamic braking, transfers excess regenerative energy directly back onto mains, and simplifies engineering and system costs – no brake resistor required.

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Lenze
engineered to win

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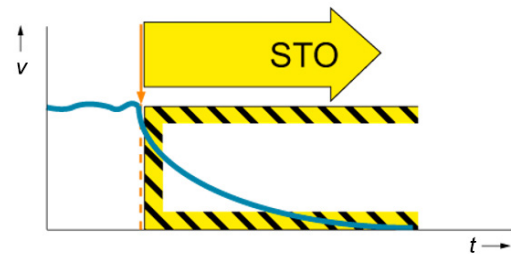
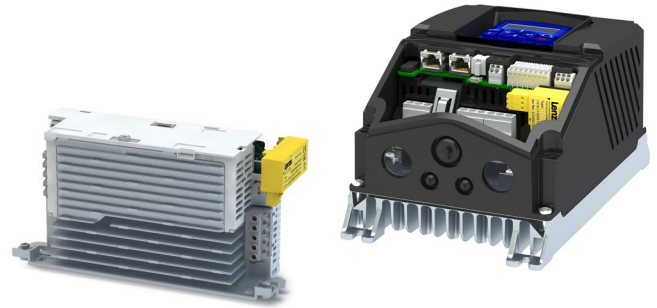
Conveyors

Conveyors are used in a wide range of commercial, industrial, and intralogistics applications. Conveyor motors are sized for the maximum torque starting condition; however, once a system is running at speed the required torque, and thereby the energy requirements, drops significantly.

To get the best sizing possible, the i500 drives series are all capable of 200% peak load for 3 seconds, and 150% for 1 minute. To achieve maximum energy savings, i500 drives can use their "V/Hz eco" function to dynamically adjust their V/Hz profile to reduce the voltage supplied to the motor as a function of dropping motor current.

Adjustable S ramp acceleration/deceleration allows jerk to be reduced and results in gentler material handling. Switch-off positioning can be employed for repeatable stopping orientation of the application.

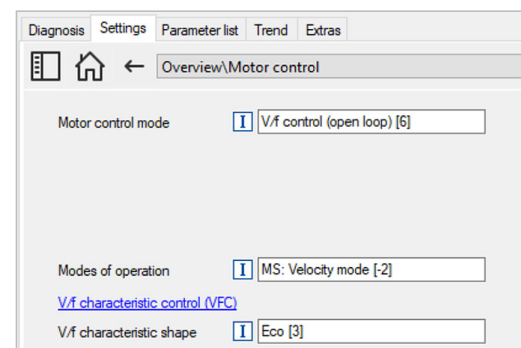
The i550 also features an optional Safe Torque Off (STO) input module rated for SIL3 level e performance-ready to integrate into your plant's stringent safety control systems.



Technical Details

Details V/Hz Eco mode for maximum energy savings:

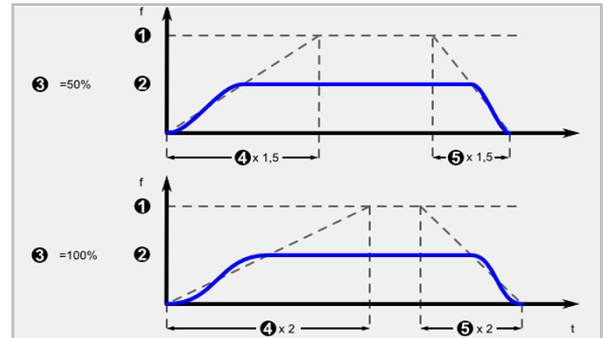
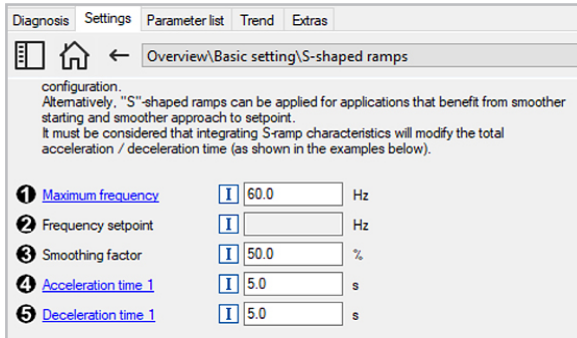
In the Lenze i500, set the "Motor control mode" (P300.000) = "V/f control (open loop) [6]" and also set "V/f characteristic shape" (P302.000) = "Eco [3]" to take full advantage of the energy savings for induction motors in conveyor applications.



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To minimize jerk for gentle material handling:

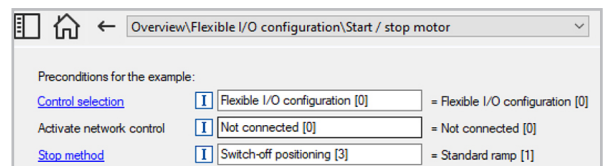
Set "Acceleration time 1 (P222.000)" and "Deceleration time 1 (P221.000)" as required for the application then program a "Smoothing factor (P226.001)" to apply the S-Ramp to the profile.



To employ Switch-off Positioning:

Set "Stop method (P200.003)" to "Switch-off Positioning [3]."

When this is used, the drive will delay the start of deceleration so that the inverter, regardless of current output speed, will rotate the motor the same number of revolutions as it would if the motor was commanded to stop from rated speed.

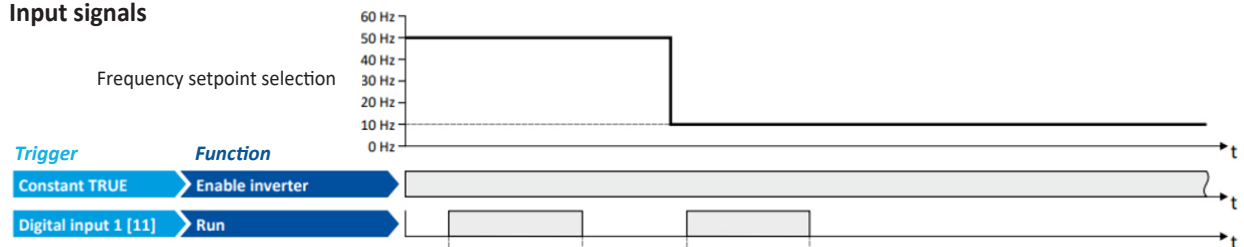


Example calculation:

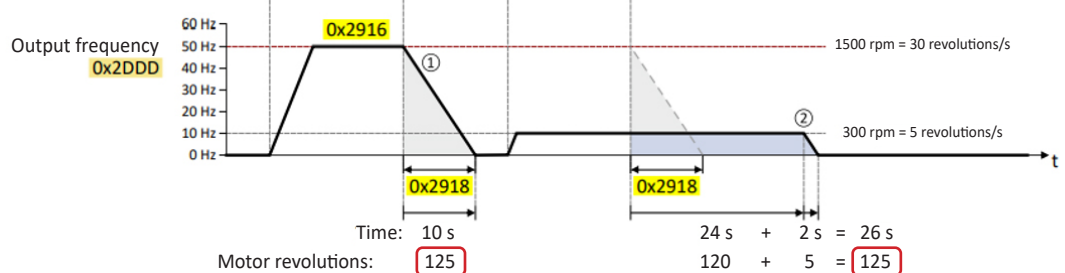
- 4-pole 50 Hz motor with rated speed = 1500 rpm
- Maximum frequency 0x2916 (P211.00) = 50.0 Hz
- Deceleration time 1 0x2918 (P221.00) = 10.0 s

$$\text{motor rotations} = \frac{1500 \text{ [rpm]}}{60 \text{ [s]}} \cdot \frac{\text{delay time [s]}}{2} = \frac{25}{2} \cdot \frac{10 \text{ [s]}}{2} = 125$$

Input signals



Output signals



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i550 optional STO usage:

