



## What always guarantees the optimum solution in conveyor technology?

Efficient drive and automation technology for simple and complex conveyor applications in all sectors.

Answers for industry.

**SIEMENS**



### **An innovative concept ...**

Whether it involves drives, controls, sensors or the power distribution – as your partner, we support you with a portfolio that precisely fits your needs:

- The optimum products and systems: From the drive and automation technology through safety technology up to power distribution
- Competent technical guidance and extensive support to draw-up concepts that are truly fit for the future
- Global service, locally provided in over 130 countries

### **... where the focus is on you: customer and sector-specific requirements**

We can offer you a whole raft of products and systems for conveyor-related applications in the widest range of sectors.

What do they all have in common? They are part of unified systems and technologies and can be flexibly scaled. They fulfill the highest standards when it comes to quality, reliability and safety – and are available worldwide.

Further, with our extensive range of systems, we offer many advantages where machinery and plant construction companies benefit along with plant operating companies – and that over the long term.

## The precise fit for every area, perfect for every challenge: Customized conveyor technology – from Siemens

Cost-effective material flow control or high-precision positioning, efficiently transporting goods over long distances or innovative solutions in the smallest space. In conveyor technology, productivity across the board is decisive for the overall success. This applies to all sectors. Whether conveying, sorting, storing or picking. Are you looking for efficient solutions for standard applications or do you have to master complex demands and requirements? With innovative technology from Siemens, you can experience conveyor technology from the cost-effective, flexible and future-oriented perspective.

Implement quickly, act close to your customers –  
**Your advantages as machine OEM and plant construction company**

- A field-tested and extensive portfolio with standard products as well as tailored systems and services.
- Intelligent tools to support you when engineering, selecting and dimensioning components and energy-efficient systems, parameterizing, programming and commissioning.
- Standard and modular conveyor system components, such as standard interfaces or power bus systems, for distributed plant concepts – also in a high degree of protection.  
The result: lower installation and commissioning costs as well as increased flexibility and system availability.
- Unique system and sector competence as well as the maximum degree of security for the future thanks to leading technologies in the market that are always being developed further.

Reliably use and tap into the full potential –  
**Your advantages as plant operating company**

- A complete product portfolio for conveyor-related applications: From geared motors through motor starters and inverters, sensors and switchgear up to the automation.
- Smooth commissioning to ensure fast plant ramp-up.
- Our systems can be quickly expanded and devices quickly replaced for minimum downtime and retrofit times.
- Outstanding availability thanks to the high quality of our products and extensive diagnostics for preventive maintenance.
- High energy-saving potential thanks to our energy-efficient motors, motor starters, soft starters and inverters as well as our Power Management System based on SIMATIC PCS 7, SIMATIC WinCC and multi-function measuring devices.

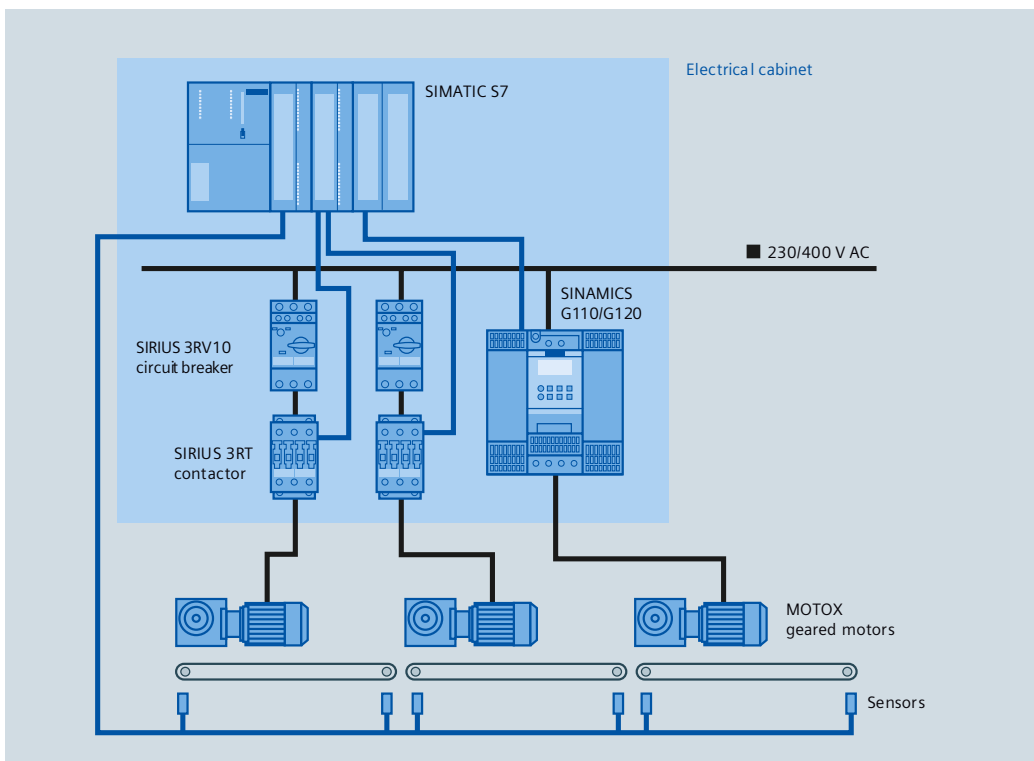
## Cost-effective product distribution on roller conveyors: Concept based on simple motor feeders and inverters (IP20)

Are you looking for a drive and automation concept for basic conveyor systems? Then we can offer you a cost-effective solution that flexibly fits your requirements and fulfills the following demands:

- Low hardware costs
- Many drives in a small space (high drive density)
- Central electrical cabinet design
- Simple, conventional wiring (no fieldbus)

### Further, Siemens offers you tailored solutions, e.g.:

- MOTOX geared motors, optionally equipped with a pluggable connection system according to ISO 23570
- SIRIUS industrial switchgear – devices that are harmonized and coordinated with one another (circuit-breakers, contactors ...) can be simply combined to form a motor feeder
- SINAMICS G110 inverters
  - compact design
  - the terminal locations are the same as conventional switching devices (contactors)
- SINAMICS G120 inverters
  - modular design
  - capable of energy recovery as option
  - with integrated safety technology as option
- The drive functions are conventionally controlled via a SIMATIC S7 control
- RF identification systems and code reader systems for product detection and tracking

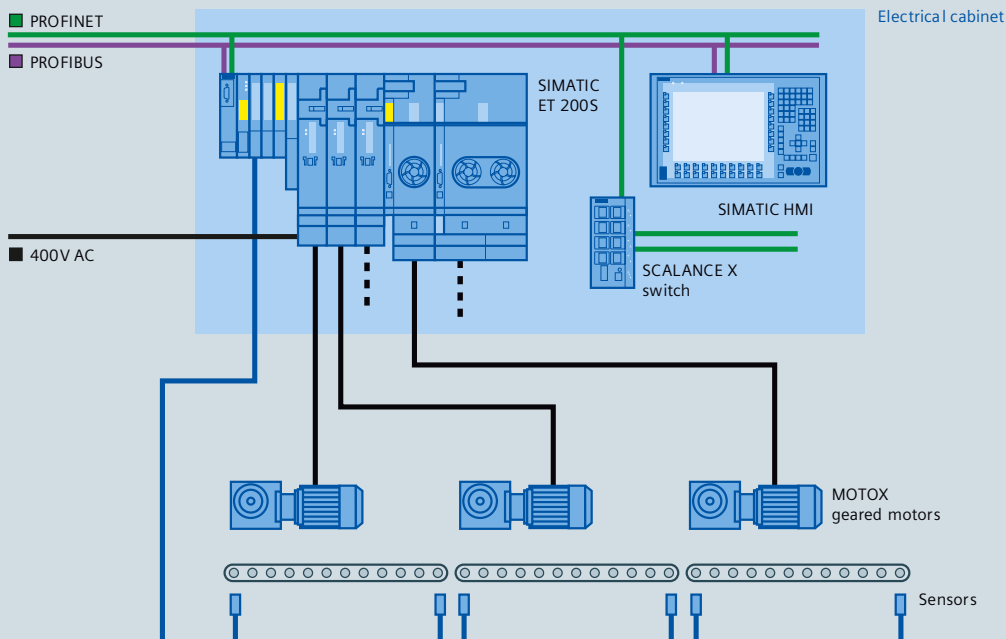


Channels every requirement onto an efficient track:

## Concept based on the modular SIMATIC ET 200S (IP20)

Complex conveyor technology applications demand flexible drive and automation concepts that have a high degree of availability. We can offer you a standard and integrated solution that fulfills the following requirements:

- Electrical cabinet design (drives in an IP20 version) or distributed electrical enclosures
  - Many drives in a small space (high drive density)
  - Low space requirement
  - High degree of flexibility and detailed diagnostics
  - High degree of availability
  - Optional safety technology
- SIEMENS offers you the optimum solution, e.g.:**
- MOTOX geared motors, optionally equipped with a pluggable connection system according to ISO 23570
  - Motor starters (up to 7.5 kW) and inverters (up to 4 kW) integrated in the distributed SIMATIC ET 200S I/O, with the following features:
    - IP20 degree of protection
    - modules can be exchanged without requiring tools (hot swappable)
    - inverters including energy recovery capability
    - only one bus address and 400 V infeed for several drives
    - high degree of flexibility as a result of the modular design
    - optional: interface module with integrated CPU
  - RF identification systems or code reader systems for product detection and tracking
  - SIMATIC HMI for operator control and detailed diagnostics of the plant/system
  - Safety Integrated is optionally available for all of the relevant components



Everything focuses on the highest reliability:

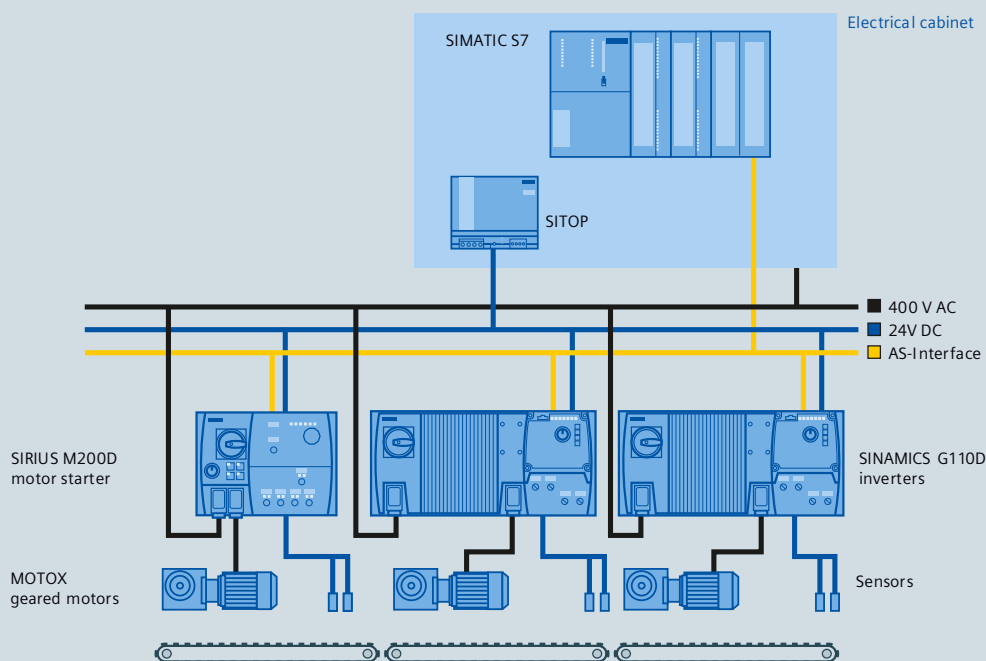
## Concept based on SIRIUS M200D and SINAMICS G110D including communication via AS-Interface (IP65)

Are you looking for a distributed and automation concept in a high degree of protection for your standard conveyor systems? We can offer you an efficient solution that fulfills the following requirements:

- Distributed drive topology (high degree of protection)
- Simple installation and fast commissioning
- Simple to use and operate (usability)
- Standard functionality and diagnostics
- Maintenance-friendly (fast, simple replacement)

### Experience tailored solutions from Siemens to achieve this, for instance:

- MOTOX geared motors, optionally equipped with pluggable connection system according to ISO 23570
- Distributed SIRIUS M200D motor starters (up to 5.5 kW) and SINAMICS G110D inverter (up to 7.5 kW)
  - IP65 degree of protection
  - AS-Interface for communication, parameterization and diagnostics
  - manually operated maintenance switch (in some cases, optional)
  - Quick-Stop function
  - pluggable connection system according to ISO 23570
- SIMATIC S7 controllers
- Communication processors (CP) as AS-Interface master (Spec. 3)
- RF identification systems or code reader systems for product detection and tracking



Everything revolves around the flexibility:

## Concept based on SIMATIC ET 200pro and SINAMICS G120D including communications via PROFIBUS or PROFINET (IP65)

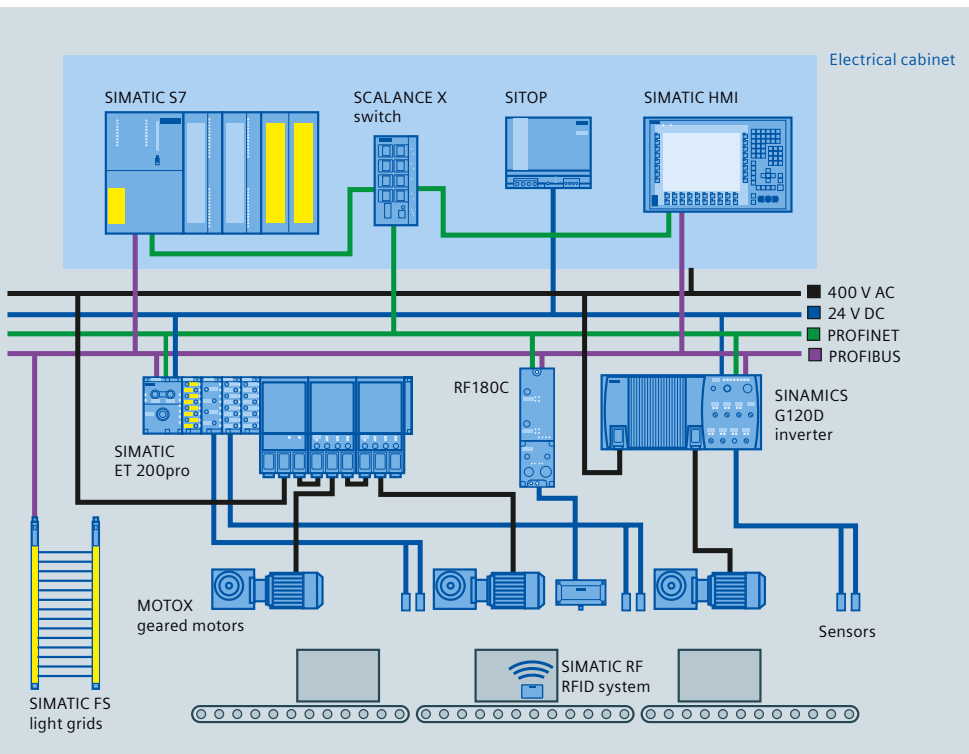
We also offer a distributed drive and automation concept for sophisticated conveyor technology applications that must meet high demands regarding flexibility and availability.

This concept fulfills the following requirements:

- Distributed drive topology (high degree of protection)
- Simple installation and fast commissioning
- High degree of flexibility
- High degree of functionality and detailed diagnostics
- No maintenance (fast, simple replacement)
- Optional safety technology

### Siemens offers you a perfectly adapted and flexible solution, e.g.:

- MOTOX geared motors, optionally equipped with a pluggable connection system according to ISO 23570
- Distributed SIMATIC ET 200pro as combination for motor starters (up to 5.5 kW) and inverters (up to 1.5 kW) or distributed SINAMICS G120D inverters (up to 7.5 kW):
  - high degree of flexibility through the IP65 degree of protection and modular design
  - PROFIBUS or PROFINET for communication, parameterization and diagnostics
  - pluggable connection system according to ISO 23570
  - additional functions in the inverter, e.g. energy recovery, freely assignable function blocks (logic), optional safety technology (STO, SS1 and SLS)
- SIMATIC S7 controllers
- SIMATIC HMI for operator control and detailed diagnostics
- RF identification systems or code reader systems for product detection and tracking
- Highest network availability with SCALANCE X switches – specifically designed for industrial applications



Striving for the highest productivity:

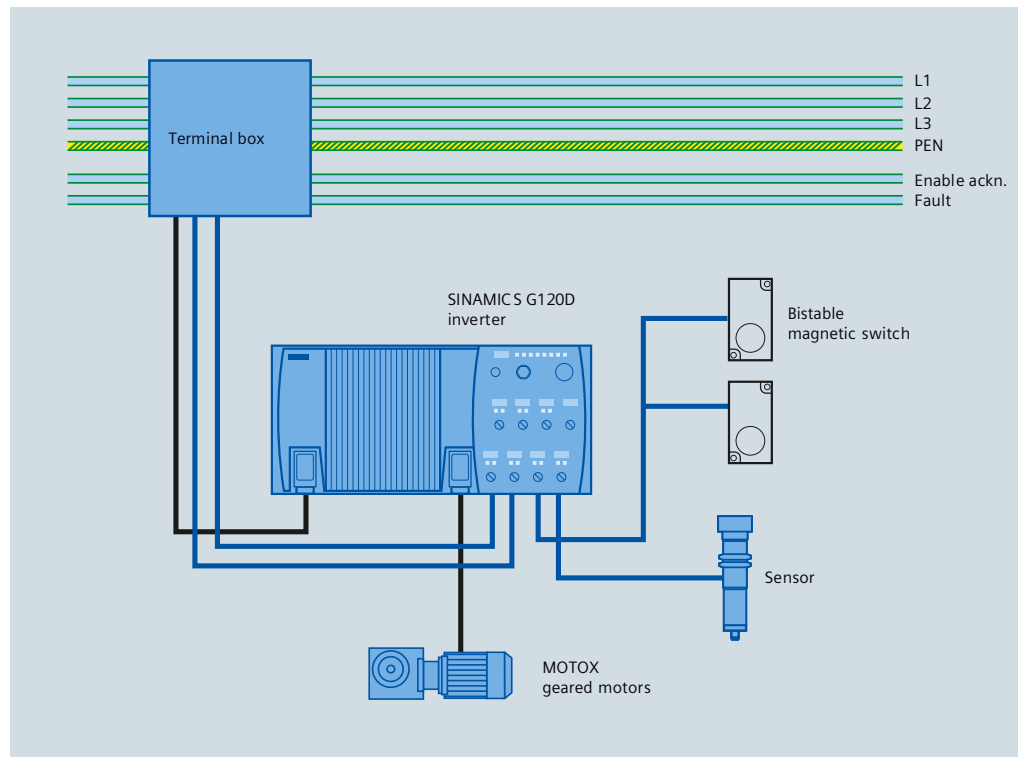
## Concept based on SINAMICS G120D (IP65)

You are looking for a drive and automation concept for trolleys used in a basic electrical monorail system (EMS) with a travel drive that fulfills the following requirements:

- Simple installation and fast commissioning
- Just a few different travel speeds
- Low requirements on the control functionality
- Simple diagnostics
- Simple to use and operate (usability)

**From Siemens, we can offer you the optimum solution, e.g.:**

- MOTOX geared motors for electric monorail systems, optionally equipped with pluggable connection system according to ISO 23570
- Distributed SINAMICS G120D inverters (up to 7.5 kW)
  - pluggable connection system according to ISO 23570
  - modular design, therefore lower costs for stocking spare parts
  - capable of energy recovery, therefore a braking resistor is not required
  - compact design in IP65 degree of protection
  - integrated “freely-assignable blocks” to implement logic functions
  - parameterizable fixed frequencies (16 different frequencies)
- SIRIUS switching and protection devices to protect the electronic and electrical components



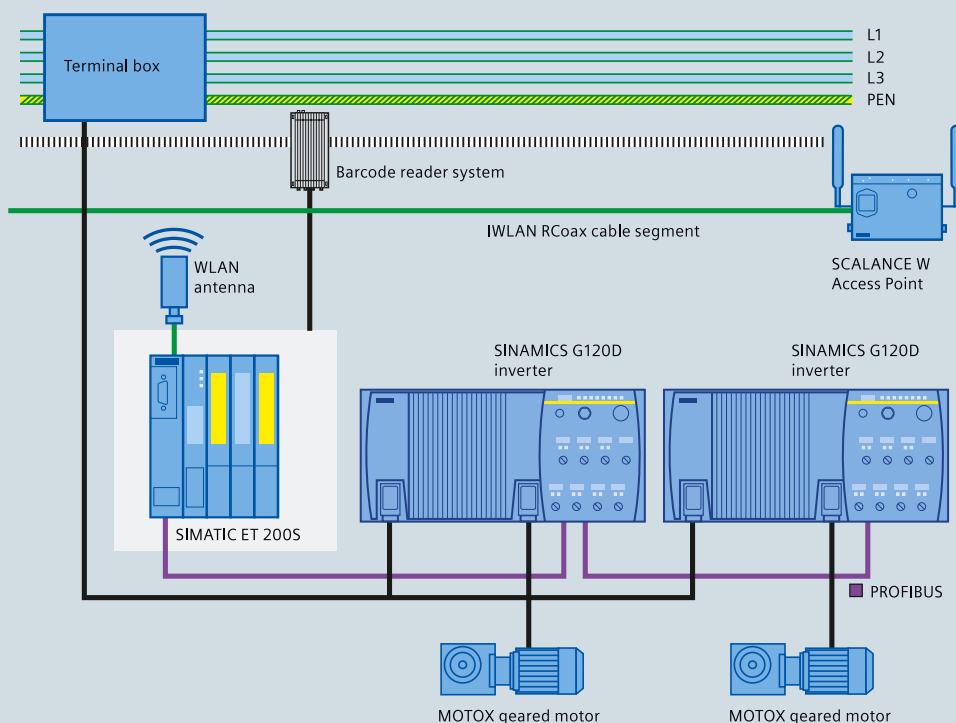
# Completely seamless and unified even in the most complex situations: Concept based on SINAMICS G120, SIMATIC ET 200S and W-LAN

The more complex the conveyor-related task, the more important a seamless unified solution. We can offer you a control and drive concept for electric monorail systems with travel as well as hoisting drive - if required with additional drives to rotate or swivel. The following demands are also fulfilled regarding functionality and flexibility:

- Simple installation and fast commissioning
- Flexible drive speeds
- Flexible control functions
- Detailed and extensive diagnostics
- Integrated safety functionality
- Simple to use and operate (usability)

### Experience tailored solutions from Siemens, e.g.:

- MOTOX geared motors and EMS geared motors, optionally equipped with pluggable connection system according to ISO 23570
- Distributed SINAMICS G120D inverters
  - power ratings up to 7.5 kW for powerful hoisting gear
  - capable of energy recovery, therefore a braking resistor is not required
  - pluggable connection system according to ISO 23570
  - modular design, therefore lower costs for stocking spare parts
  - compact design in IP65 degree of protection
  - integrated safety functionality (Safety Integrated)
- Trolley control based on SIMATIC ET 200S in degree of protection IP20
- Can be expanded in a modular fashion, therefore can be flexibly adapted
- PROFINET device with lower-level PROFIBUS
- Communication via IWLAN and RCoax (leak wave cable)
- Integrated safety technology
- RF identification systems for product detection and tracking
- Reliable and secure wireless communication using SCALANCE W access points – also to meet higher requirements

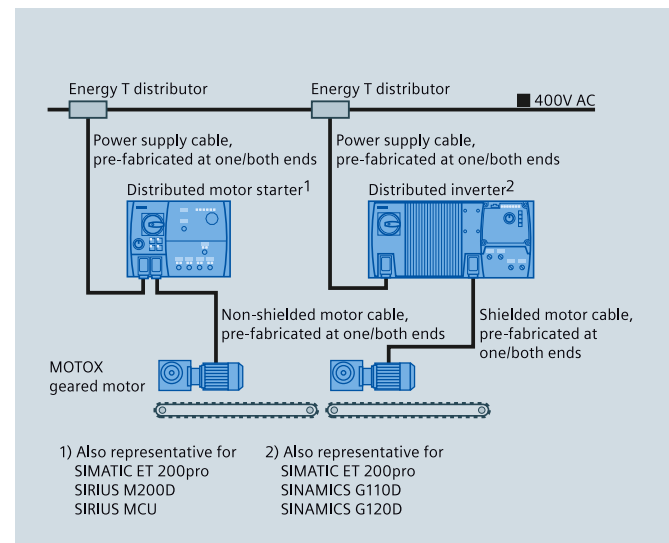


## More than just components: Possible savings through unique supplementary benefits

From simple up to complex: With products from Siemens, you can fulfill all of the usually encountered conveyor technology tasks. Beyond this, we can offer you a wide range of features that represent significant energy-saving potential. For instance, add-on products for distributed drive technology according to ISO 23570, Quick-Stop functionality and identification systems – that always fit each and every application. The advantages for you are quite clear: Fewer components, simpler wiring, all of the marketable bus systems, higher production rate as well as shorter maintenance times.

### Add-on products for distributed drive technology according to ISO 23570

In addition to drive and automation components, we can also offer you connection systems according to ISO 23570 – such as power supply cables, power T-terminal connector and motor cables for distributed drives. As a consequence, you profit from the certified applications and products of system-based technology – which precisely meet your demands and are quickly available. These are complemented by customized solutions for connection systems. We implement these add-on products in part through our Solution Partner Program. This is a unique network of selected system integrators: Globally standard and qualified solution suppliers for our automation and power distribution portfolio as well as Product Lifecycle Management (PLM). The combination of our product and system know-how with the extensive application and sector knowledge of our partners guarantees perfect solutions to address each and every requirement.



## Precise stopping with Quick-Stop – even at high speeds

Conveyor systems running at higher speeds, increasing demands placed on the PLC: For a standard task such as stopping products that are being conveyed at a light barrier can cause problems. The light barrier signals are transferred to the motor starter/inverter (MS/FI) via the PLC. As a consequence, the actual position where the products stop can deviate significantly depending on the “utilization level” of the PLC. The consequences include long run-out distances and lost time. However, with the Quick-Stop function, the sensor is directly connected to the MS/FI and the extremely fast and constant evaluation from a time perspective guarantee short and precise stops. Not only this - Quick-Stop is also an extremely flexible function:

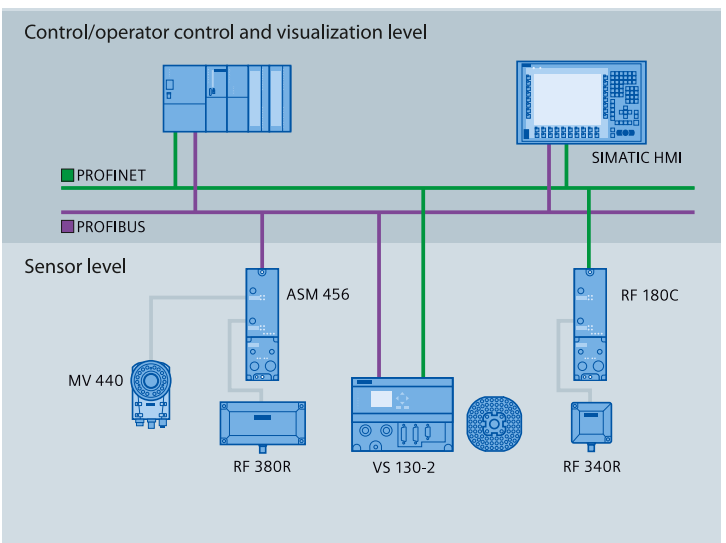
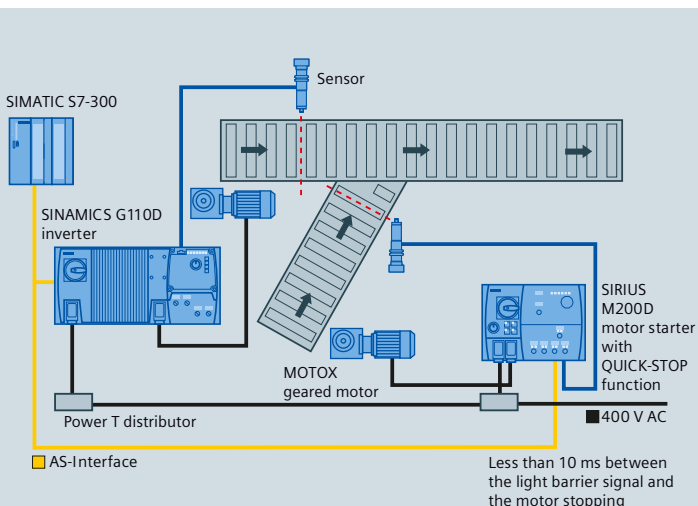
- With the PLC signal “inhibit Quick-Stop”, the conveyed products are let through without stopping – to achieve a higher production rate
- If Quick-Stop is not required, then the PLC input can be freely used – for lower costs and a higher degree of flexibility

It goes without saying that Quick-Stop is fully integrated in the PLC process image. This means that device parameters and signal states are always available.

## The optimum solution for every identification task

Whether for just-in-sequence production or reliable and seamless traceability of products or batches: Machine-readable and automated, contactless identification systems are being increasingly used in intelligent material flow and production control. Data Matrix Codes (DMC) and Radio Frequency Identification (RFID) are convincing as a result of their high data security. They have proven themselves in a whole raft of applications – even in rugged industrial environments. They significantly speed-up identification and reduce the amount of work involved when compared to manual identification and detection technologies. The main criteria for selecting the optimum data storage and identification technology are as follows:

- Is the data medium re-used (closed-loop) or is it lost at the end of the processing chain (open loop)
- Capability to be identified/written to just once or repeatedly within the processing chain
- Detection distance/ranges and light situations/contrast
- Properties of the products to be marked - as well as the space available to locate marking equipment
- Potential sources of noise and interference such as ambient temperatures and dirt



More drive across the board:

# Our products and systems for conveyor technology applications



## Geared motors

- Extensive portfolio of geared motors for the highest efficiencies
- Optimal use - especially at low speeds from 0.1 to 1000 rpm and for high torque utilization
- For applications requiring a high dynamic performance servo geared motors
- Highest level of cost-effectiveness using energy-saving motors  
IE1 – Standard Efficiency (in Europe, previously comparable with EFF2) or  
IE2 – High Efficiency (in Europe, previously comparable with EFF1, in the  
US, comparable with EAct) and a wide selection of application functions
- Extremely flexible thanks to the different types of construction, mounting  
versions and the modular principle
- Optimally coordinated and harmonized with SINAMICS inverters and SIRIUS  
motor starters
- Simpler engineering and installation as a result of in-depth sector-oriented  
application know-how

[www.siemens.com/gearedmotors](http://www.siemens.com/gearedmotors)



## Inverters

### SINAMICS – the comprehensive family of inverters

- The optimum drive for every application
- Central (IP20) or distributed (IP65)
- For space-saving, distributed solutions G110D or G120D
- High degree of ruggedness
- AS-Interface, PROFINET or PROFIBUS connection
- Capable of energy recovery
- With innovative Safety Integrated functions
- Simple configuration and commissioning using the well-proven SIZER and  
STARTER tools
- High degree of flexibility when engineering and expanding
- Ideal solution for the widest range of applications: From simple roller tracks  
up to multi-axis high-bay racking units with a high dynamic performance
- Can handle positioning and motion control functions - integrated in the  
drive or using a separate control
- For extensive motion control functions:  
SIMOTION – available in different versions

[www.siemens.com/sinamics](http://www.siemens.com/sinamics)



### SIMATIC ET 200 inverters

These inverters are directly embedded in the distributed SIMATIC ET 200S or ET 200pro I/O system.

- All of the advantages of the SIMATIC ET 200S system - e.g.:
  - communications and power bus
  - module replacement and voltage
  - installation without tools and minimized wiring costs as a result of  
self-establishing potential buses
- Capable of energy recovery
- Safety Integrated functions

[www.siemens.com/et200](http://www.siemens.com/et200)



## Motor starters

### SIRIUS and SIMATIC ET 200 motor starters

The appropriate choice when switching, protecting and starting motors

- The complete range of starting types: direct, reversing and soft starters
- From smooth, jerk-free starting up to extremely high breakaway torques
- Intelligent monitoring functions including preventive maintenance
- Safety Integrated functions

### For use in the electrical cabinet

- Simple contactor/circuit breaker combinations
- Pre-wired SIRIUS 3RA1 load feeders
- Flexible SIRIUS 3RW soft starters
- Especially cost-effective SIRIUS 3RA6 compact load feeders
- Space-saving motor starters that are quickly installed for the distributed SIMATIC ET 200S I/O

### For use in the field

- SIRIUS M200D motor starters as ideal solution for conveyor technology
- Space-saving motor starters that are quickly installed for the distributed SIMATIC ET 200pro I/O
- Especially cost-effective SIRIUS MCU motor starters
- ECOFAST motor starters as direct, reversing or soft starters for mounting on the motor

[www.siemens.com/sirius-starten](http://www.siemens.com/sirius-starten)



## Controls, I/O, software

### SIMATIC Controllers

With SIMATIC Controllers, you can freely select between various mechanical designs and different CPU performance classes. SIMATIC Controllers offer numerous integrated functions and can be finely scaled regarding their performance. Numerous modules are available to address specific requirements. These include fail-safe components for applications involving safety and redundant systems for processes requiring a high availability. These are complemented by technology modules for integrated technological functions such as counting/measuring, cam control, closed-loop control and motion control. SIMATIC Controllers are based on different hardware and software architectures:

- SIMATIC Modular Controllers
- SIMATIC Embedded Automation
- SIMATIC PC-based Controllers

[www.siemens.com/simatic-controller](http://www.siemens.com/simatic-controller)

### The modular SIMATIC ET 200 family of I/O

- For distributed solutions
- Compact or modular
- Pure digital I/O interfaces or complete, distributed systems with drive technology
- Installed in an electrical cabinet or directly in tough industrial environments

[www.siemens.com/simatic-et200](http://www.siemens.com/simatic-et200)

### SIMATIC Software: universal engineering and programming environment for all of the SIMATIC Controllers

- Including the operator control and monitoring systems
- Together with the STEP7 basis package and a whole raft of engineering tools, SIMATIC Software supports the complete engineering workflow

[www.siemens.com/simatic-software](http://www.siemens.com/simatic-software)



## Sensors

Sensors represent the sensory elements of machines and plants in automated production processes. With SIMATIC Sensors, Siemens offers a complete range of sensors to address the widest range of requirements in the production industry:

- Vision sensors for application-specific image processing
- RFID systems and code reader systems for product detection and tracking
- Safety sensors to protect persons or machines in hazardous areas

[www.siemens.com/simatic-sensors](http://www.siemens.com/simatic-sensors)

Mechanical sensors are also part of a complete conveyor system. This is where our SIRIUS detection devices come in. Reliable and with the necessary precision, they detect any motion and transfer this in the form of an electrical signal.

[www.siemens.com/sirius-erfassen](http://www.siemens.com/sirius-erfassen)



## Operator control and visualization

### SIMATIC HMI

Increasingly complex processes and growing demands regarding the functionality of machines and plants represent huge challenges for operating personnel, which they can only master by having the highest degree of transparency.

This is the task of the human machine interface (HMI). The interface between man and machine links the automation environment with the individual requirements of the operator.

SIMATIC HMI offers an extensive portfolio of innovative as well as cost-effective products and systems for the wide range of operator control and visualization tasks:

- Basic operator panels with keys, compact operator control devices and unified and standard visualization software
- Scalable SCADA system for process visualization
- Optimally adapted products to address special demands, e.g. especially rugged operator devices according to IP65 for mounting on a carrier arm or for standard foot mounting
- We can also implement customer-specific versions on request

[www.siemens.com/simatic-hmi](http://www.siemens.com/simatic-hmi)



## Communication

### SIMATIC NET

All of the machines in a plant or system should perfectly and smoothly interact with one another. This can be achieved using open, transparent communications that do not take place at the production level, but are integrated at all of the company levels and in all of the business systems. This is the only way to avoid isolated automation and IT solutions. Products belonging to the SIMATIC NET family, specifically designed for industrial communications, precisely provide the technology that is required to:

- Establish a distributed automation system
- Achieve data transparency from the field level all the way up to the company supervisory level
- Utilize the technologies of mobile communications
- Integrate IT technologies
- Communicate across all bus levels: With AS-Interface, PROFIBUS or PROFINET

[www.siemens.com/simatic-net](http://www.siemens.com/simatic-net)



## Safety technology

### Safety Integrated safety products

- Unique, complete and unified safety portfolio – from sensors through controls up to the drives
- Tailored solutions for compact up to highly flexible machines
- Extensive service and support
- Support when applying safety directives

[www.siemens.com/safety](http://www.siemens.com/safety)



## Power distribution and Power Management

### SIVACON switchgear, SENTRON switching, protection and measuring devices and Power Management

Efficient power distribution within the framework of Totally Integrated Power:

- With type-tested SIVACON switchgear and busbar distributors for safe, reliable power transmission and reliable power distribution.
- With versatile and communication-capable SENTRON circuit breakers to safely and reliably protect and switch plants, systems and loads
- With SENTRON load disconnectors - simple and quick to install - to safely and reliably disconnect/switch plants, systems and loads - with or without fuses
- With the SENTRON PAC3200 and SENTRON PAC4200 multi-function measuring devices to precisely acquire electric measured values and power
- With the innovative Power Management add-ons SIMATIC PCS 7 powerrate and SIMATIC WinCC powerrate to ensure transparency and to monitor power distribution and costs.

[www.siemens.com/lowvoltage-power](http://www.siemens.com/lowvoltage-power)

# Conveyor technology references

## Integrated drive and automation technology for airport logistics

### The challenge

With the continually increasing amount of air traffic and new airlines always arriving on the scene, the rapid growth in the aerospace industry places the highest demands on the infrastructure and logistics - and on all of the associated technologies. Major airline hubs typically have a large number of gates, a high passenger volume and a high transfer quota. Whether short or long transfer times - there is a demand for fast and high performance baggage handling systems with a high capacity and precise sorting capabilities.

### Our solution

Extending over an area of 9000 m<sup>2</sup>, the innovation and testing center in Fürth, Germany, demonstrates how a variety of different individual systems can be combined to create a complete functional concept for ultra-modern international airports. Our integrated drive systems ensure reliable baggage handling. After a piece of luggage has been checked in and a corresponding barcode has been attached, it is transported on an RFID-supported conveyor belt system to the HBS system (Hold Baggage Screening). The baggage is screened there according to the specified safety regulations and is then forwarded on using a tray conveyor system. The trays allow baggage to be moved without subjecting it to excessive wear at especially high speeds of up to 10 m/s.

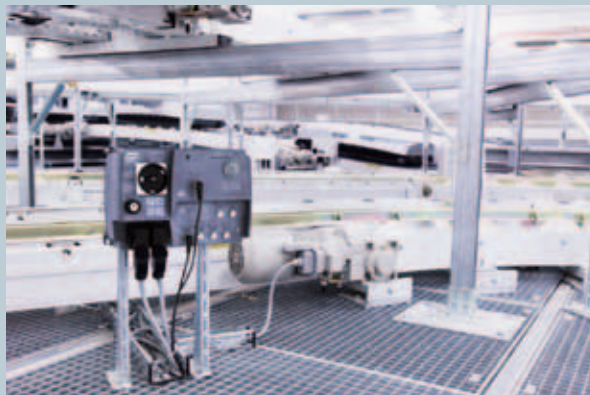
The baggage is then routed to the aircraft loading station via the sorter and slides. All of this means that the baggage handling system places high demands on the drives. To comply with these demands, our high-performance drive solutions

combine low noise, high-torque Siemens/Flender geared motors with the matching inverters – and intelligent motor starters that handle 3000 starts per hour. The motors are linked to the central control system of the baggage handling system via the AS-Interface and PROFIBUS communication systems. The conveyor segments only operate when they are actually needed and the drives respond quickly and appropriately to the associated sensor signals. Type-tested switchgear and busbar distributors as well as the integrated communications-capable switching and protective devices feed the necessary power to the drives at the required time. Further, the innovative Power Management add-on SIMATIC WinCC powerrate in conjunction with the SENTRON PAC3200 and SENTRON PAC4200 multi-function measuring devices ensure transparency and monitor the power distribution and costs.

### Advantages

The innovation and testing center in Fürth proves how modern airports can be efficiently realized using integrated overall concepts, and how power consumption can be minimized while increasing capacity at the same time. And this is precisely the solution that major airports need to prepare for handling increasing passenger volume. Whether regarding products, special system components or for the complete project: When planning and implementing airport equipment, we can leverage our 20 years of experience and competence in this area. There are some good reasons why five of the ten best airports worldwide are equipped with our baggage handling systems: The No. 1 worldwide – Hong Kong International Airport – as well as airports in Dubai, Munich, Seoul and Sydney. As a comprehensive and innovative partner, we understand what's important - both today and in the future.

Innovation and testing center for airports



## Modernized conveyor technology optimizes truck production at IVECO Magirus in Ulm

### The challenge

While modernizing both of their truck assembly lines at the IVECO plant in Ulm, Germany, the company wanted to upgrade the outdated contactor controls and drive system. Both of these production lines for 14-ton trucks and larger are roughly 500 meters long and divided into three sections. The conveyor must be able to run at variable speeds of between 0.5 m/min and 1.4 m/min.

### Solution

Our helical and helical bevel geared motors with 5100 Nm or 3000 Nm respectively are operated using MICROMASTER 440 inverters with vector control. These are linked to the SIMATIC S7-400 automation system via PROFIBUS DP. All of the sensor signals are collected at several stations of the distributed SIMATIC ET 200S I/O and also transferred to the control – or to the higher-level SIMATIC WinCC SCADA system. The 56 Emergency Stop switches distributed widely throughout the plant are connected to ASIsafe using safety K45 AS-i I/O modules. The four AS-i lines each extend a distance of approximately 300 meters. This was achieved by using two AS-i repeaters per line. Furthermore, DPI/AS-i Links establish the connection to the higher-level PROFIBUS.

### Advantages

The comprehensive modernization of the drive and control technology resulted in a drastic increase in plant availability – and with it a jump in productivity. In addition to the production area, the benefits especially extend to the maintenance of the assembly line networks. Previously, there were approximately 30 to 40 fault disturbances registered everyday - today, there are only between 5 and 6. And since this low number of incidents is now consistently and automatically logged in the process control system, it is possible to isolate and eliminate any recurring problems.

## Comprehensive automation solutions for the Ingolstadt Hospital

### The challenge

Serving meals on time to more than 1000 patients – and that, three times a day. The logistics at the Ingolstadt Hospital has to fulfill some high demands - especially since the solution also needs to reliably supply medicines, sterile utensils, laundry and detergents. In addition, used items and materials must be disposed of, with a strict separation between supply and disposal to prevent any contamination.

### Our solution

Within the scope of the comprehensive modernization of the automation system, the hospital chose SIMATIC: The core elements in the travel gear chassis and loading cart are now S7-300 CPU 313C SIMATIC controls. These are combined with MICROMASTER 440 inverters as well as two powerful induction motors. Straightforward operator control and monitoring functions for the individual travel gear are provided in the form of a SIMATIC OP3 operator panel. The Moby D RF identification system is used to localize them along the 500 meter track. Furthermore, all of the floor controllers exchange information via standardized SIMATIC CP 343-5 communication processors - and through high-speed PROFIBUS communications.

### Advantages

The modernization of the automation system has markedly improved the workflow – and ensures that patients, employees and operating companies are satisfied. For instance, when it comes to the used containers, no operator intervention is required. When necessary, the central control program only allows transport from the kitchen - and automatically blocks all other transport activities. This allows meals to be delivered to all of the patients on time without any delay.

IVECO Magirus



Ingolstadt Hospital



# Conveyor technology references

## Innovative configuration and visualization in glass production at Rexam in Nienburg

### The challenge

Rexam Glass Germany produces more than 300,000 tons of glass annually at its Nienburg facility. In continuous production, after coating, glass bottles are transported to buffer sections and tables which can buffer ongoing production for up to 20 minutes in the event of a disruption. However, Rexam does not want to have to use this option too often. After all, a company's profitability rises and falls with the availability of its production facilities.

### Our solution

A crucial element of the comprehensive modernization measures – carried out on six production lines at the cold end – is a conveyor system that is approximately 1000 meters long and is equipped with 220 inverter-based single-motor drives. This solution was developed by the Miprotek Company based in Northern Germany. It features especially user-friendly operator control – based on the dust-proof and heat-resistant SIMATIC panel PC 670 with degree of protection IP65. A PLC-based conveyor concept developed by Miprotek ensures smooth operation. A SIMATIC S7-315-2DP control is installed on each line: It sets the speed and individual setpoint values for the various drives, reads out the updated current actual values, monitors limits and compiles important process data. Furthermore, intelligent configuration and visualization software ensures maximum transparency in all of the process steps. This software is based on visual basic scripts that were implemented in ProTool/Pro.

### Advantages

While the SIMATIC PC 670 ensures trouble-free visualization, ProTool/Pro makes it far easier to program the installed drives. The drives are largely pre-configured, meaning that the ProTool/Pro user interface was easy to transfer to all six production lines at the cold end. This reduced the engineering costs by approximately 20%.

## SIMATIC controls logistics and production at Universal Manufacturing & Logistics in Langenleben

### The challenge

Universal Manufacturing & Logistics (UML) produces CDs and DVDs in small batches. With a SIMATIC control system in place, these CDs and DVDs can now be delivered to customers in 80 countries from the company's own distribution center within 24 hours. UML itself has a maximum storage capacity of 28 million data carriers (CDs or DVDs). This represents an enormous volume that requires an integrated and reliable automation concept to ensure precise handling.

### Our solution

After the CDs and DVDs have been produced on more than 22 ultra modern carousel machines at UML, each disk receives its own unique label with up to six different colors in a screen printer. A SIMATIC S7-300 CPU handles the controls for the screen printing machine as well as the new packaging lines. SIMOVERT MASTERDRIVES inverters are used for the drives. Just like the SIMATIC ET 200 I/O modules, these are also connected to the control via PROFIBUS DP. The individual sub-warehouses are automated and linked with one another completely using Siemens technology via SIMATIC, PROFIBUS and AS-Interface.

### Advantages

The use of our solution has provided sustainable value added. Thanks to the maximum transparency when it comes to the production-related and logistical processes, 95% of the catalog items are permanently available - and fast post-production is guaranteed. Thanks to the especially short production times, up to 90,000 order lines can be handled in the distribution.

Rexam Glass



UML



# More efficiency in conveyor technology

## Totally Integrated Automation

With Totally Integrated Automation (TIA), Siemens is the only manufacturer that can offer an extensive, integrated and unified range of products and systems for all automation tasks and in all sectors. This represents the optimum basis for solutions that are perfectly tailored to specific requirements.

Thanks to the unique level of integration of TIA, all of the sub-steps involved in conveyor technology, across all automation levels, can be perfectly integrated into a complete solution. This allows all of the processes to be continually optimized and plays an essential role in reducing the total cost of ownership. Further, the significantly lower overhead for interfaces guarantees the highest degree of transparency, minimizes the complexity of the automation solution and ensures absolutely reliable operation.

Totally Integrated Automation offers a whole raft of advantages over the complete machine and plant lifecycle – from planning through operation up to modernization. Here, the unified approach when further developing our products and systems guarantees the highest degree of security of investment.

## Safety Integrated

Safety Integrated is the consequential implementation of safety technology in the sense of Totally Integrated Automation: On one hand, within the scope of Safety Integrated, safety-related functions are directly integrated in the standard Siemens products: On the other hand, safety technology can be integrated into the standard automation in a unified and user-friendly way. As a consequence, Safety Integrated ensures a wealth of advantages – especially from the economic perspective. For instance, thanks to the significantly simplified engineering, safe and productive machines and plants can be implemented considerably faster – and easily adapted to new requirements. This unified overall system of safety technology and standard automation also has a positive impact on plant and system operation: More efficient diagnostic functions reduce the danger of potential downtimes and increase the overall availability.

## Totally Integrated Power

Totally Integrated Power stands for integrated and unified solutions for power distribution in industrial – for cost-effective power concepts.



## Service without limits

Whether shipping your drive precisely as ordered, delivery, installation and mounting, commissioning or maintenance: Our experts are always there for you. Locally – and in over 130 countries around the world. This means that you profit from short delivery times: You receive each and every component as quickly as possible thanks to our optimized logistics and production processes.

By the way, you can also easily order products and components through the Internet. You will find all of our products listed in a clear structure under [www.siemens.com/automation/mall](http://www.siemens.com/automation/mall). In fact, using EDIFACT, you can even administer your order online. Further, we are also there for you personally. Whether you require support from our service specialist, you wish to order spare parts or you simply have a question: You will always obtain the best possible support through our hotline.

## More information:

[www.siemens.com/conveyor-technology](http://www.siemens.com/conveyor-technology)

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