

SIEMENS



Innovative door management – now with EC motors

SIDOOR for elevator applications: reliable, simple and efficient

[siemens.com/sidoor](https://www.siemens.com/sidoor)

The system solution for greater convenience, safety and usability

SIDOOR is the result of more than 25 years experience in the field of elevator door drives. Working with most current door systems and conforming to all applicable codes, SIDOOR sets the industry standard in terms of convenience, ruggedness and precision.

Installation is quick and efficient, servicing is easy, and commissioning is automatic.

SIDOOR also provides a number of safety-related features designed to save lives in emergencies, as well as eco-friendly components (RoHS compliant) across the board.

SIDOOR for EC motors: Innovative control of elevator doors

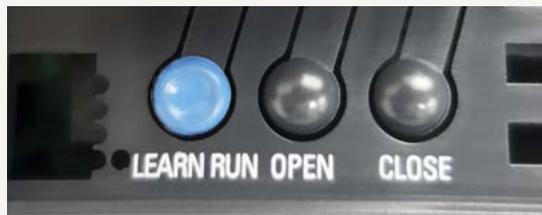
Siemens continues to invest in the development of our SIDOOR door operator system, building on three decades of global knowledge.

Our latest system incorporates the benefits offered by EC motors, while retaining the ability to offer DC motors when required. SIDOOR EC motors are brushless, offering advantages such as significantly increased service life, lower noise levels and higher power density. Siemens adds intelligent mechanical design and innovative sensor feedback to achieve faster acceleration, smooth braking and uniform door speed consistency.

Siemens also offers a 1-button commissioning with automatic learn-mode enhancing the controller module. During commissioning, our intelligent controller calculates the optimal drive characteristics of the installed door system. This includes the weight of the doors, the inertia of the drive components and any inherent friction. These settings are monitored on each cycle to keep your doors performance maximized for days, weeks and months into service.

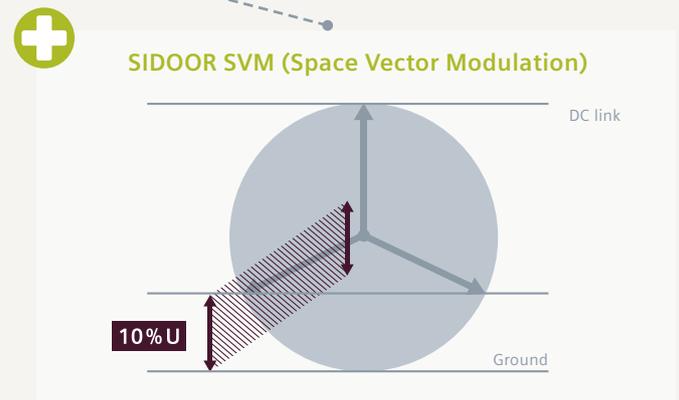
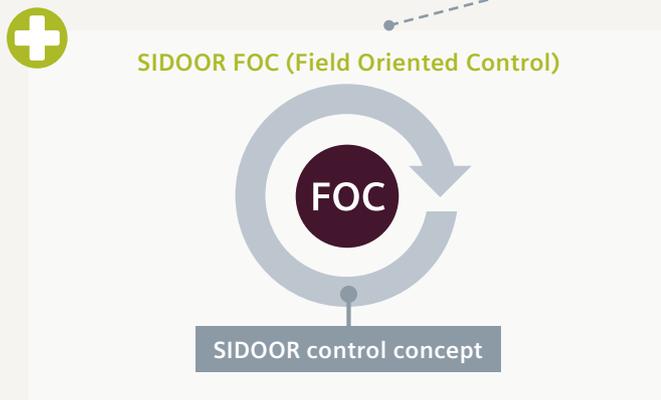
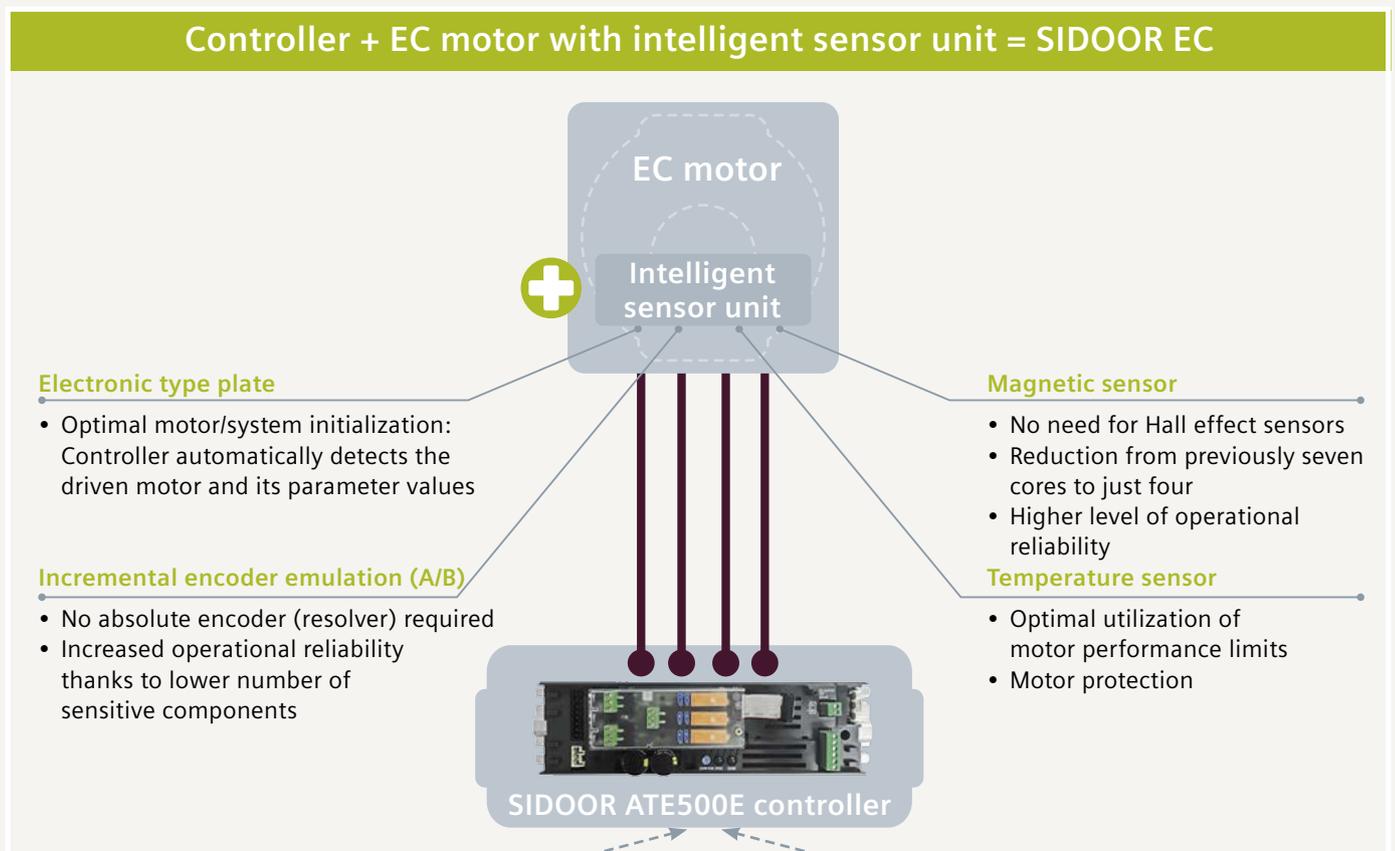
SIDOOR EC – Highlights at a glance

- Control concept
- Weight and friction determination
- High efficiency levels (direct drive)
- Long maintenance intervals
- High power density
- Improved motor cooling thanks to intelligent mechanical and surface design
 - Reduced thermal load
 - Higher number of cycles/time
 - Longer service life
- cULus Certificates
 - UL61010-1/-2-201
 - EN13849
 - EN62061



Highest-level functionality in the smallest of spaces

It is no surprise that SIDOOR EC sets the standards in elevator door management. The reason lies in our trendsetting combination of an innovative controller and intelligent sensor unit, which is integrated into the motor. The result is a system solution which offers significantly more than other standard devices on the market – despite being uniquely compact in design.



SIDOOR EC motor – Technical specifications

Length x width	160 x 140 mm
Depth	57 mm without belt pulley – suitable for any door mechanism
Rated output	200 W
Max. output	285 W
Rated speed	400 rpm
Rated torque	4.7 Nm
Max. rated torque	6.7 Nm
Sensor type	Integrated magnetic encoder with emulated AB-channel incl. encoder modulation for position information (patent pending)

SIDOOR EC controller – Technical specifications

Length x width	320 x 80 mm
Depth	60 mm
Digital inputs	4 standard inputs
Digital outputs	3 outputs via floating relay contacts
SVT	SIDOOR Service Tool (SVT)
Power stage	6 individual MOSFETs
Current measurement	1 high-side and 3 low-side short-circuit trips Current measurement for operation and monitoring
Heat sink	No heat sink (highly efficient power range, increased reliability)



Intelligent sensor unit – integrated in the motor

SIDOOR EC uses a sensor unit integrated in the motor to monitor operating data. It contains a magnetic sensor for the high resolution detection of angle-of-rotation data. Hall effect sensors are no longer required and cabling can be reduced from seven to just four conductors. This reduction in the number of components also serves to increase operational reliability.

The integrated temperature sensor monitors the generation of heat automatically in a closed-loop control process. This enables optimal utilization of motor performance, as the motor is not under or overloaded.



Optimal speed control and positioning accuracy – SIDOOR FOC

FOC (Field Oriented Control) makes it possible to operate a motor at the optimum torque and ideal speed at all times. This enables the quick and precise control of motor speeds, particularly for applications with frequent dynamic load changes. SIDOOR FOC relies on a physical sensor to precisely determine the rotor position and generate the corresponding magnetic field in the stator, thereby generating the maximum possible torque. As the FOC control algorithm has been tailored to the SIDOOR control concept, the motor speed is able to be optimally regulated in a closed-loop control process, and just one control parameter set covers the entire spectrum of door weights.

Benefits at a glance

- Weight-independent control response
- Functional safety: 10 joules + force limit (150 N)
- No undershoot – continuous rotation
- No calibration or maintenance work required



Increases in both energy efficiency and reliability with SIDOOR SVM

Compared to pure sinusoidal modulation, the innovative Space Vector Modulation (SVM) technique employed by SIDOOR enables a significant increase in the degree of control. This in turn allows the degree of modulation – and thus the speed – to be increased by 10%.

Benefits at a glance

- Higher power density and reliable utilization of motor performance
- Same power rating – lower space requirements
- Higher efficiency levels, lower losses
- Noise minimization

Trendsetting technology – designed down to the smallest detail

Optimized belt system

SIDOOR EC combines an optimized belt system with a motor winding to match. The force/speed characteristic enables steep acceleration ramps at final velocities of 0.8 m/s. The result is decreased times and simple belt and pulley installation.

Improved operational reliability thanks to intelligent diagnostics system

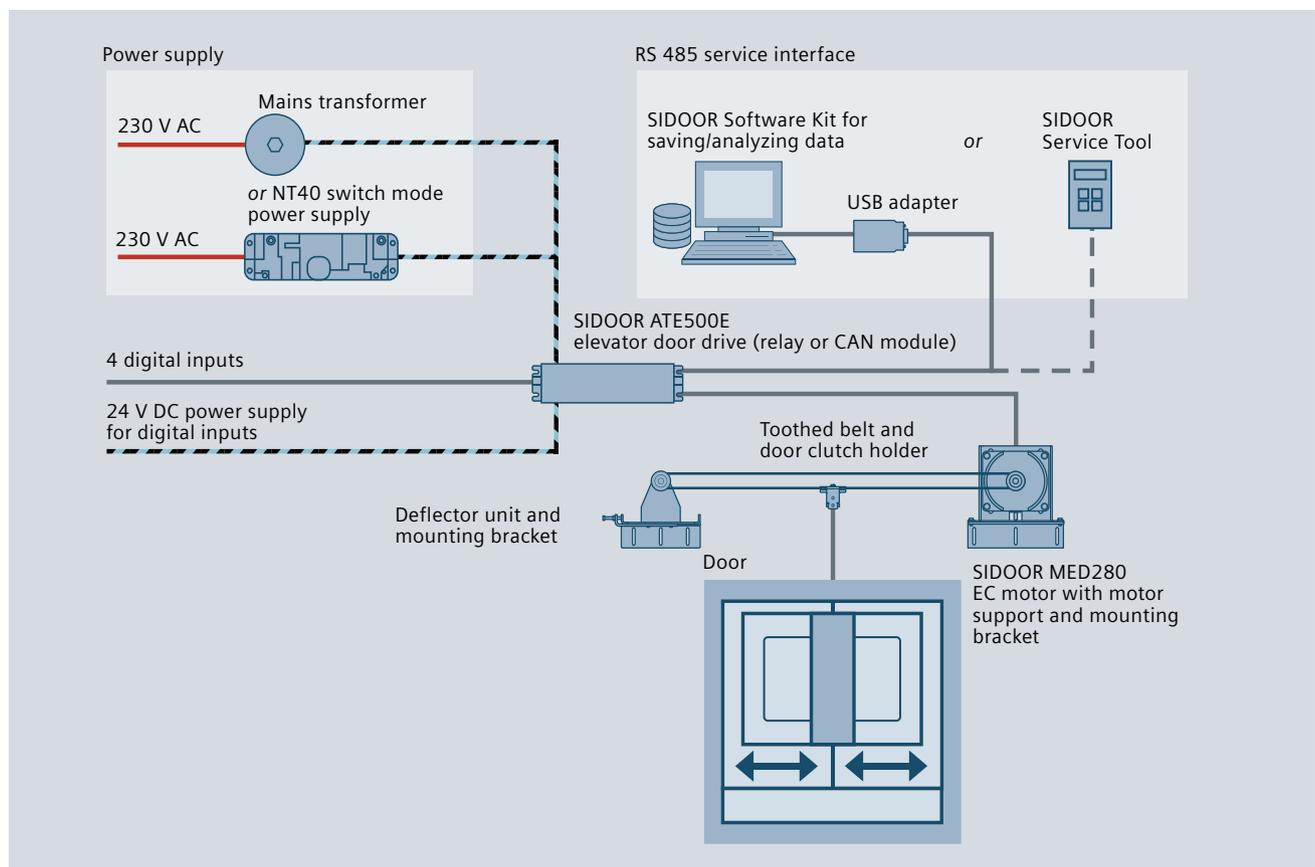
Another unique aspect of SIDOOR EC is its intelligent diagnostics system – as opposed to standard systems that run automatic function tests at periodic intervals, it carries out an extensive self-testing routine before every door movement – in just 50 ms. This not only increases the overall level of operational reliability, but also improves fault diagnostics.

Mechanical components

- Motor support
- Mounting bracket for motor support as well as for deflector unit
- Deflector unit with tensioning device and pulley
- Door clutch holder (2 clutch holders required for centrally opening doors)
- Toothed belt (4 m/45 m)



Example system configuration: EC direct drive system SIDOOR ATE500E controller and SIDOOR MED280 EC motor



For more information, visit:
[siemens.com/sidoor](https://www.siemens.com/sidoor)

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