



SIEMENS

Ingenuity for life

Engineered with TIA Portal

Door openers for public passenger rail service

SIDOOR – the intelligent
door management system

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



Innovations for platform screen doors

The Dongguan-Huizhou Intercity High Speed Railway, the Taiwan Taipei MRT Blue Line, the Guangzhou-Zhuzhai Intercity High Speed Railway, and the Shanghai Metro are already equipped with platform screen doors – barriers that control access from the platform to the trains.

Every day, hundreds of millions of people worldwide use public transport systems. In large cities, public transport is frequently the only way to get from one place to another quickly and inexpensively. Although public transport is becoming more and more attractive as the volume of road vehicle traffic incessantly rises, it also poses major infrastructural requirements for short- and long-distance rail-mounted systems.

This is where SIDOOR comes into play. The innovative drive systems from Siemens for automatic platform screen doors offer much more than just a high level of safety: they also enhance the convenience for all stakeholders.

Platform screen doors are becoming indispensable

Railway stations today face difficult conditions for rail transport services. In addition to posing potential hazards for passengers and train drivers, platforms also are bottlenecks in the logistical people-moving processes of rail services. Passengers expect a high measure of convenience.

At the same time, metro operators are increasingly turning to automated train lines with platform barrier systems to increase efficiency and reliability. Platform screen doors, or PSD for short, are thus becoming an indispensable part of such installations, ensuring passenger safety as well as convenience. Platform screen doors that serve as a barrier between the railway track and the platform enable passengers to board and exit trains safely.

In addition to protecting passengers, these platform screen doors provide many other benefits: They enable rail operators to increase the frequency of trains and optimally coordinate passenger loading and unloading, thus saving time. Such barrier doors also allow climatic conditions in stations to be significantly better controlled, enhancing passenger comfort.



The control unit and drive together form an integral, perfectly coordinated system. Operating data acquisition, parameterizing, and monitoring are performed via the TIA Portal engineering framework.

SIDOOR complete solutions

In addition to the actual investment decisions, it's the implemented technology that decisively influences rail system installations. There's a basic rule among rail operators: Solutions must be economical but must also function fault-free over long periods of time. SIDOOR from Siemens, supporting the trend to equip railway stations with platform screen doors, is geared for use in a broad range of platform barrier systems.

SIDOOR, with its new door drive solution consisting of a SIDOOR ATE53xS controller combined with an EC direct-drive MED280 unit or an EC geared motor MEG251, meets these goals perfectly. The SIDOOR product family, which includes all necessary accessory components, offers complete solutions that are convincing from both a technical and a financial standpoint. Users benefit at the same time from the extensive range of support services, including numerous application examples, support documents, and online support (www.siemens.com/sidoor).

The new ATE530S door controller communicates via PROFINET with the superordinate control system. It works with EC motors to create a versatile, complete, high-performance system. The ATE53xS and ATE530S door controllers of the SIDOOR family are intelligent door drives that enable safe and secure operation of platform screen doors (PSD) and platform screen gates (PSG), based on individual requirements and safety requirements. The EC motor technology used ensures high reliability and requires no maintenance.

Features of SIDOOR ATE530S platform screen door controller

- Use of standard components of automation technology
- Full integration in the TIA Portal by means of General Station Description (GSD) files and the function modules provided
- Adaptable output of an unlocking sequence
- Individually parameterizable behavior in case of obstruction and dynamic obstruction detection
- Sequential control for intelligent switching between off-line operation, service operation, and remote operation
- Support from travel limit sensors
- Safe and reliable restriction of the forces and energy that the user may select (with factory settings of 150 N and 20 J in the as-delivered condition)

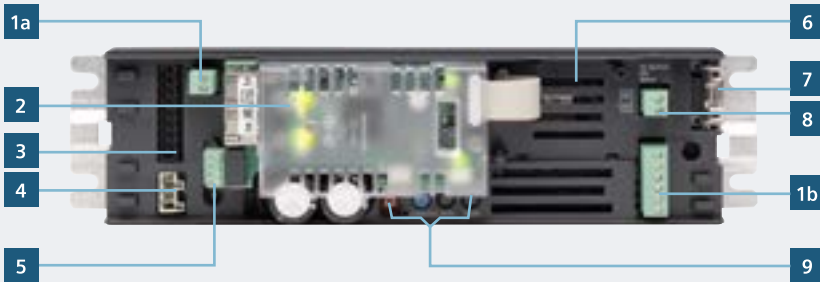
Main components:

- Door controller: SIDOOR ATE530S
- Motor: SIDOOR MED280 or, alternatively, SIDOOR MEG251
- Power supply unit: SIDOOR transformer (e.g. SITOP PSU300S 20A)

Mechanical accessories:

- Motor holder
- Mounting bracket
- Door clutch holder
- Deflector device
- Toothed belt





- 1a Connection for input signals
- 1b Connection for input signals
- 2 PROFINET module (2PN, including status LEDs)
- 3 Connection for SIDOOR EC motor
- 4 Connection for power supply (SIDOOR transformer or SITOP)
- 5 Connection for output signals
- 6 Fan (for ATE531S only – no image)
- 7 Connection for software kit (via SIDOOR USB adapter) or service tool
- 8 Direct-current voltage output 24 V DC/400 mA
- 9 Status display and service buttons

Electronically commutated (EC) motors – technology for dynamic door weights of up to 280 kg – low-noise, low-heat, and maintenance-free

Commissioning and maintenance performed by superordinate system controller

Protective cover available optionally, with expanded temperature range up to +70 °C

Field bus connection via PROFINET to SIMATIC SPS, and thereby expanded inputs and outputs via standard SIMATIC components

The screwless housing design enables the housing to be opened and closed without any tools, and fitted with plug-in terminal connections, thereby reducing installation time.

Five inputs and two outputs are individually configurable with the aid of "FBLOCK" function units

Certified to:
IEC 62061 – Safety Integrity Level (SIL) 2 for specified functions
EN 60950
EN ISO 13849-1
EN 14752 (force and energy)

Features and functions

Expandable I/Os by means of SIMATIC components

Standardized communication interface

Safe and reliable inputs via non-equivalent signals directly at the controller

Software updating and learn run via PROFINET as well as friction compensation

Automatic maintenance algorithm that identifies, analyzes, and signals changes in system friction

Individually parameterizable behavior in case of obstruction and dynamic obstruction detection

Adaptable behavior of an unlocking sequence

Benefits

Number of I/Os varies per project. Every platform screen door project can be custom fitted

Consistent, end-to-end system communication for the entire platform via PROFINET

Safe and reliable opening and closing of doors

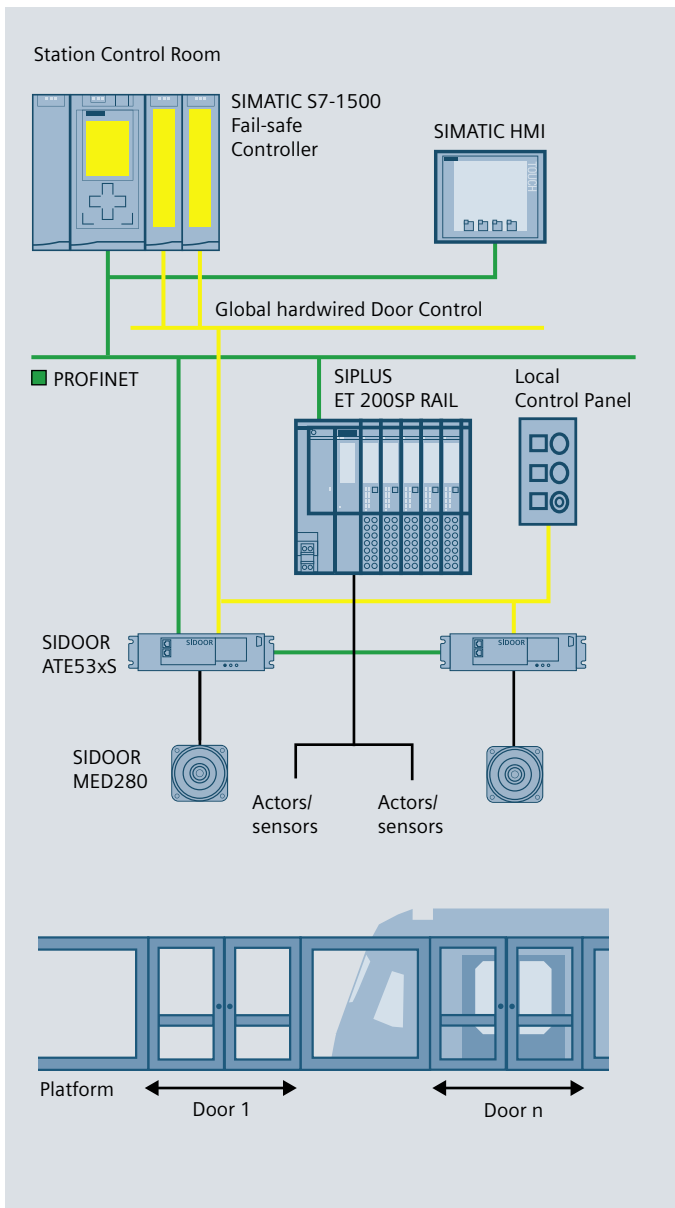
Reduced commissioning times

Predictive maintenance -> precise forecasting of soiling, damage, and wear

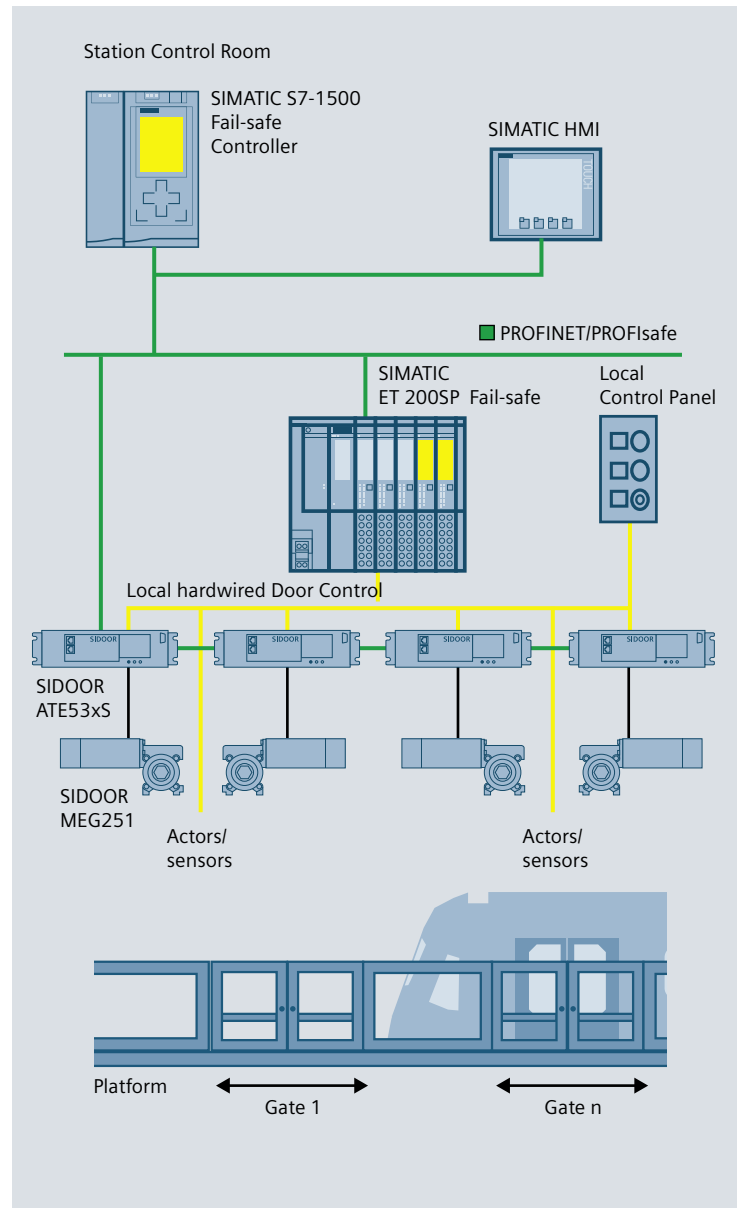
Versatile adaptation of the system to meet the project requirements

Control actuation of a broad number of differing unlocking mechanisms

Application examples










Application example SIDOOR Mobility – Platform screen door (PSD) with PROFIsafe




Application example SIDOOR Mobility – Platform screen gate (PSG)



Controllers		MLFB	Feature
	SIDOOR ATE530S	6FB1231-3BM10-7ATO	<ul style="list-style-type: none"> Controller for platform screen doors, horizontal • With PROFINET module • SIL 2 in accordance with IEC 62061 • Fully automated learn run with automatic friction, door width, and weight determination • Individually parameterizable behavior in case of obstruction • Sequential control for intelligent switching between offline operation, service operation, and platform (remote) operation • Door widths ranging from 35 cm to 5 m
	SIDOOR ATE530S coated	6FB1231-3BM12-7ATO	<ul style="list-style-type: none"> • Features as above, plus <ul style="list-style-type: none"> – transparent protective cover*
	SIDOOR ATE531S (depicted without cover)	6FB1231-3BM11-7ATO	<ul style="list-style-type: none"> • Features as above, plus <ul style="list-style-type: none"> – transparent protective cover* – temperature range extended up to +70 °C
Motors		MLFB	Feature
	SIDOOR MED280	6FB1203-0AT12-7DAO	<ul style="list-style-type: none"> • Gearless EC direct-drive motor for door weights of up to 280 kg • Only one motor for various mounting directions
	SIDOOR MEG251 right-handed	6FB1203-5AT01-7MP0	<ul style="list-style-type: none"> • EC geared motor for door weights of up to 250 kg • For retrofit applications (replacement for SIDOOR ATE250S, including SIDOOR MEG250) • Right-handed gearing
	SIDOOR MEG251 left-handed (no image)	6FB1203-5AT00-7MP0	<ul style="list-style-type: none"> • Features as above, but with left-handed gearing
Power supply		MLFB	Feature
	SIDOOR Transformer	6FB1112-0AT20-2TRO	<ul style="list-style-type: none"> • Single-phase 230 V AC (±15%), 50/60 Hz, IP54 • Including 1.5-meter-long connecting line to control unit
	SITOP PSU300S 20A	6EP1436-2BA10	<ul style="list-style-type: none"> • Three-phase 340 to 550 V AC, 50/60 Hz, IP20 • Only in conjunction with line circuit breaker 10KA 1POL C8, e.g. SENTRON 5SY4108-7KK11 for rail applications
	SIPLUS PSU300S 20A (no image)	6AG1436-2BA10-7AA0	<ul style="list-style-type: none"> • Features as above, additionally for medial loads ranging from –25 °C to +70 °C

* Compliant with EN 50155, Sections 12 and 9.4: to prevent any functional impairment or damage due to humidity and atmospheric pollutants.



Hazardous situations can never be entirely ruled out. Intelligent safety solutions offer reliable protection.

SIDOOR PROFINET communication

With its SIDOOR innovative door control system, Siemens demonstrates once again just how simple integration can be. By using field bus communication via PROFINET, SIDOOR drives can be easily integrated into the more secure and reliable automation environment, for instance of an SIMATIC S7-1500 controller with its Safety Integrated functionality, and thus into the rail operator's instrumentation and control system.

The system thereby adapts to its specific environment, and can be easily commissioned and put into operation thanks to the Totally Integrated Automation Portal (TIA Portal). The TIA Portal provides you with unrestricted access to our complete range of digitalized automation services, from digital planning and integrated engineering to transparent operation. This minimizes overall engineering effort.

These solutions are also extremely maintenance-friendly, even during ongoing operation. System messages and alarms are reported by fail-safe buffering, and can be centrally evaluated. This enables predictive maintenance, facilitating ease of operation and servicing. The SIDOOR door control systems are designed with two PROFINET ports so that all components can be connected together to form a fail-safe loop structure. All doors can be centrally controlled via this central data line.

The drives can thus be quickly connected together in series with the central periphery stations SIPLUS ET 200SP RAIL from Siemens, for example.

SIDOOR ensures safety and reliability

The drives for platform screen doors must work safely and reliably. That is why the control and drive solutions from Siemens focus sharply on these two aspects. The SIDOOR ATE530S controller is equipped with comprehensive safety functions certified by the German TÜV-authorized inspection agency:

- Safe Torque Off (STO)
- Safe and reliable application of force
- Safe and reliable compliance with specified speed
- Safe and reliable input and reading of digital control signals

The safe torque off function is thus quickly programmed, allowing individuals to easily free themselves in the event of a system malfunction. During normal operation, the door control system is also designed to provide continuous door monitoring and to approach obstruction locations slowly. It likewise offers the possibility of freely configuring the system's behavior in the event of an obstruction, such as the parameterizable reversing distance in the open and closed directions.

SIDOOR also supports automatic re-opening of platform screen doors (reversing). The force and energy restrictions allow rapid door movements even with heavy doors.

What's more, the control system is certified EN 60950, EN ISO 13849-1 (fail-safe function) and EN 14752 (force and energy).

Parameterization

The door control parameters are entirely configured and evaluated by the engineering system. The manufacturer supplies appropriate function modules that enable simplified handling and quick adaptation to the given application. The engineering framework STEP 7 in the TIA Portal is used to integrate the function modules. This serves to minimize the engineering effort needed for platform screen door systems. Handling with these complete, integral solutions is easy and convenient – in fact, firmware updates of the SIDOOR control system can even be carried out via TCP/IP, which means that there is no need for a service technician to perform these updates on-site.

**Published by
Siemens AG 2016**

Digital Factory
P.O. Box 23 55
90713 Fürth, Germany

Article-No. DFFA-B10259-00-7600
Printed in Germany
Dispo 46371
21/53244 WS 09162.

Subject to changes and errors.

The information provided in this document contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks. In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions only form one element of such a concept.

Customer is responsible to prevent unauthorized access to its plants, systems, machines and networks. Systems, machines and components should only be connected to the enterprise network or the Internet if and to the extent necessary and with appropriate security measures (e.g. use of firewalls and network segmentation) in place.

Additionally, Siemens' guidance on appropriate security measures should be taken into account. For more information about industrial security, please visit www.siemens.com/industrialsecurity

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends to apply product updates as soon as available and to always use the latest product versions. Use of product versions that are no longer supported, and failure to apply latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under <http://www.siemens.com/industrialsecurity>.

Follow us on:
twitter.com/siemensindustry
youtube.com/siemens

