SIEMENS

siemens.com/sidoor

SIDOOR for protective machine doors

Contents

To give it your all under tough conditions, you have to know which direction to go in, as well as the shortest, but also safest possible route to your destination. This is just as true for alpine challenges as it is for mechanical engineering.

Innovation for protective machine doors

Automatically operated protective doors are becoming increasingly important in industrial environments. Innovative solutions are required that contribute to further increases in the productivity of manufacturing processes and at the same time offer greater levels of safety and usability.

This is particularly true for machine tools, with modern drive systems that offer increased ease of operation as well as additional safety now an integral part of the latest generations of machines.

We have the answer - SIDOOR.

SIDOOR complete solutions

Siemens is accompanying the trend towards automatic protective doors with SIDOOR. The SIDOOR range offers a convicting complete solution that is both state-of-the-art and economical.

All SIDOOR solutions are ideal for use with a varied range of protective doors, such as for machine tools. The products mainly vary in terms of their communication interfaces: USS, PROFIBUS and PROFINET. Our economical complete package, consisting of a SIDOOR control, the corresponding geared motors as well as all the necessary additional units, demonstrates our extensive expertise in this field.

At the same time, operators are also able to benefit from our comprehensive range of support services including

- Comprehensive application examples
- Support documentation
- Online support (www.siemens.com/sidoor)

A range of 2D/3D models, circuit diagram symbols and application examples is available for download to facilitate the optimal design of machine tools. This noticeably cuts down on both costs and complexity during the development phase of a project.

Motors for applications from small to large:

Our comprehensive SIDOOR product portfolio offers the ideal solution for practically any requirements.

Solutions for doors with toothed belt, gear rack or chain drives

SIDOOR offers an extensive solution portfolio consisting of

- a matching controller
- a range of motors for door weights up to 600 kg and with degree of protection up to IP56
- motors with drive shaft / key (NMS), for tooth belt, gear rack and chain wheels
- a power supply unit
- an extensive range of accessories for optimal installation

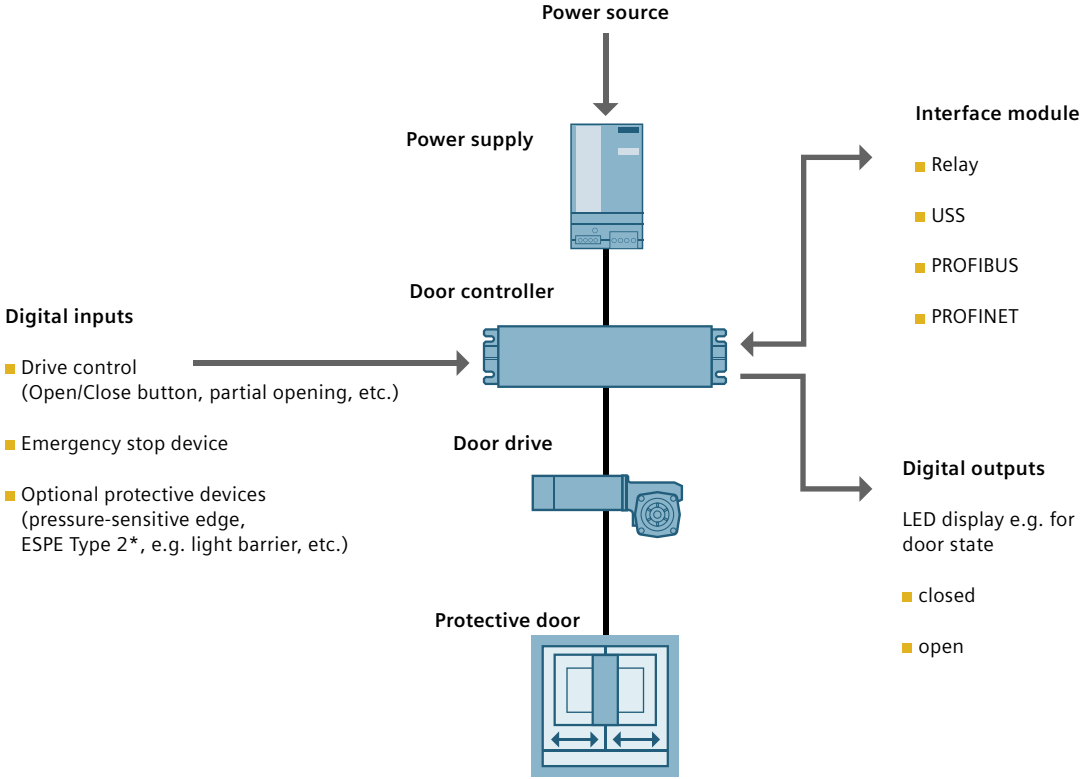
SIDOOR is quick and simple to integrate thanks to its automatic parameterization and configuration functions.

In short: Our modern SIDOOR door drive is the ideal choice if you are looking for a standard device or undertaking a retrofit project. It excels at making protective doors even easier to operate.

* Neutral Mechanical Solution - The SIDOOR MDG400 NMS motor can be operated with output gears with a pitch diameter of between 28 and 122 mm and so provide optimum door forces and door speeds

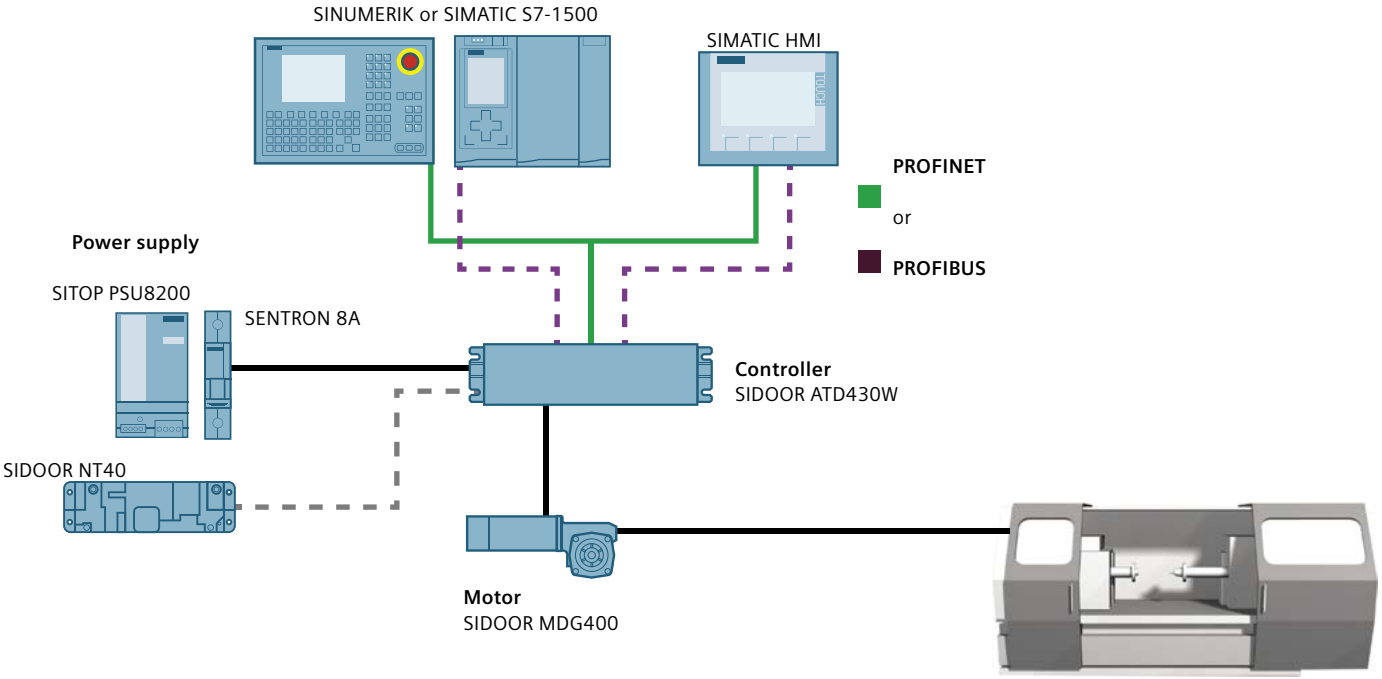
SIDOOR in practice

Typical system configuration



*Electro-sensitive protective equipment with periodic testing feature

Example system configuration



Example: Machine tool door

Additional system examples:

www.siemens.com/sidoor

Features & Benefits

The benefits for manufacturers and operators become clear as early as the installation phase. SIDOOR stands out on account of its optimal drive characteristics, which are calculated automatically at the door and continuously maintained. The **1-button commissioning** feature automatically and precisely calibrates the door dimensions and weights, eliminating the need for what would otherwise be time-consuming setup tasks.

Assisted Drive and **Impulse Stop** support the movement of heavy doors without buttons or sensors. Impulse Drive allows doors to be opened at closed with a single light tap - the door moves completely autonomously.

The **screwless enclosure concept,** with plug-in clamp connectors, allows the device to be opened and closed without tools, vastly reducing installation times.

The system's reliability, ruggedness and long-term precision **minimize the need for maintenance** and repair work. Obstruction and belt tear detection make for higher safety levels.

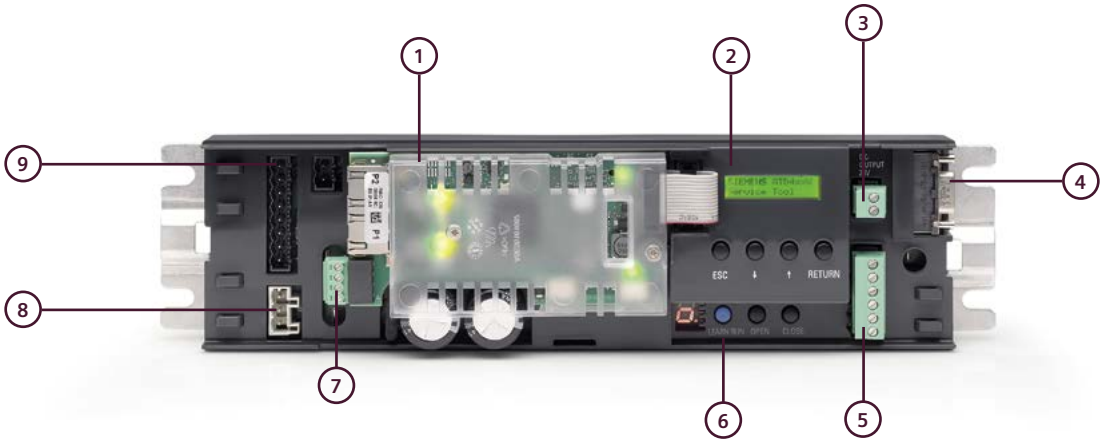
Our versatile SIDOOR units can be completely controlled by a SIMATIC S7 controller - communication on a professional level. Controlling, parameter assignment and diagnostics are performed via USS, PROFIBUS or PROFINET.

SIDOOR door controllers for industrial applications

Feature	Benefit
Certified acc. to EN 953, EN ISO 13849-1	High level of safety for persons and machines (EN 953, EN ISO 13849-1 Performance Level d)
Assisted Drive / Impulse Stop*	Motor-assisted movement of heavy doors (without sensors or buttons), supported stopping with minimal braking ramp, 5 freely parameterizable inputs for customized solutions
Impulse Drive	Open and close by briefly and lightly tapping door - door moves completely autonomously
1-button commissioning	Simple handling and rapid integration and commissioning thanks to automatic configuration function (automatic motor detection, determination of dynamic door weight and calculation of optimal drive characteristics).
Automation interface*	USS, PROFIBUS or PROFINET for control, parameter assignment and diagnostics
Function block for TIA Portal, STEP7 V5.5*	Able to be completely integrated into SIMATIC and SINUMERIK control systems
SIDOOR Software Kit, USB	- On-site configuration and diagnostics via PC - Easy activation of predefined parameter sets
Drive characteristic editor	User-friendly and customized modification of drive characteristics
NMS motor	The SIDOOR MDG400 NMS motor can be operated with output gears with a pitch diameter of between 28 and 122 mm and so provide optimum door forces and door speeds

* only applies to ATD4X0W

Product overview at the example of ATD430W



	Functions
1	PROFINET module
2	Terminal module
3	Output voltage connection
4	Service Tool or Software Kit connection
5	2X input signals connection
6	Operator panel
7	Input signal connection (only with USS, PROFIBUS,PROFINET module)
8	Input voltage connection
9	Motor connection

Just one small mistake,
and then?

Be on the safe side
with a SIDOOR solution.

SIDOOR is synonymous with safety

Protective machine door drives need to be both reliable and safe. Within a drive system, SIDOOR offers the safe limitation of forces and energy as well as safe end position determination in accordance with EN 953. Protective machine doors that are driven with SIDOOR systems also fulfill Performance Level d as specified in EN ISO 13849-1. Conformity with these standards has been certified by the German Technical Inspectorate (TÜV).

SIDOOR - when you need to go that little bit further

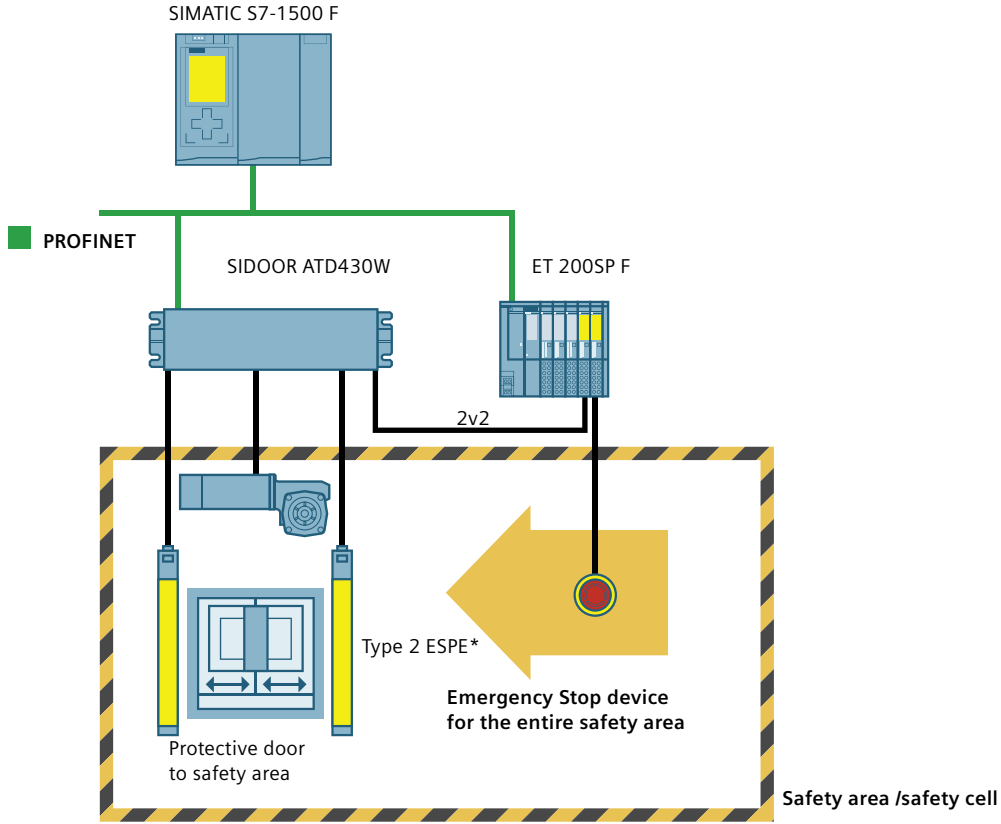
The latest SIDOOR versions continue to support the automatic reopening of protective machine doors (reversing). This means that the doors can be driven with a maximum force of up to 150 N and a maximum kinetic energy of up to 10 J - faster door movements, even with heavier doors, are thus standard-compliant.

In addition, electro-sensitive protective equipment (e.g. light arrays) can be directly connected to the door controller. This results in yet better performance, even in the most challenging of applications.

The system allows for the implementation of additional customized safety precautions, such as two-hand operation. This makes it possible to increase the permissible door speed, thus enabling machine tool cycle times to be optimized in a targeted manner.

SIDOOR - safety integrated:

Example system configuration with additional protective device ESPE Type 2, to increase the door speed in accordance with protective norms



*Electro-sensitive protective equipment with periodic testing feature

SIDOOR is synonymous with safety

Feature	Function	Benefit
Certified safety acc to. EN ISO 13849-1, PL d (forces, energies and end position detection)	SIDOOR is a safe door control system, i.e. all safety-related requirements for opening and closing doors are completely met by the door controller	Simple to integrate, resulting in high time and cost savings
Standardized communication via bus systems	SIDOOR can be connected to a higher-level controller via PROFIBUS/PROFINET	Able to use existing bus infrastructure and networks
Simple integration into existing safety concepts	Simple integration - also into existing system safety concepts (e.g. Emergency Stop device)	Low engineering costs for retrofit solutions

Whether on its own or in a team:

SIDOOR offers you absolute communication freedom.

Diverse connection options

ATD401W: The standalone solution

The SIDOOR ATD401W controller is ideally suited to autonomous deployment thanks to its relay module, which is used to output the “open” and “closed” door positions, as well as the “reversing” state, for further processing.

The ATD401W can also be parameterized via its integrated terminal module. The optional Software Kit can be used as a user-friendly means of configuring the controller via PC.

SIDOOR ATD410W/ATD420W/ATD430W: Our communication experts

Regardless of the interface version selected, the higher-level control and SIDOOR controller communicate via PROFIDrive. As well as enabling cyclic data exchange, PROFIDrive, the modular device profile, also permits manufacturer independent parameterization and diagnostics.

Application examples are available for all SIDOOR bus variants from the Siemens Support portal.

One system - multiple configuration options.

ATD410W with USS interface

Using a USS interface makes sense for retrofit projects, especially when investment volume plays a decisive role.

ATD420W with PROFIBUS interface

Integrated PROFIBUS solutions help to significantly reduce investment, operating and maintenance costs, and to decisively increase plant availability and productivity.

ATD430W with PROFINET interface

The ATD430W offers the maximum in terms of freedom as well as long-term investment protection thanks to its integrated PROFINET functionality.

Technical specifications

Inputs/outputs

Feature	ATD401W	ATD410W	ATD420W	ATD430W
Digital inputs/outputs fixed to preset default assignment	✓	-	-	-
Digital inputs and outputs flexibly parameterizable	-	✓	✓	✓
Number of digital inputs/outputs	5 / 3	5 / 2	5 / 2	5 / 2
Ports	Relay	USS	PROFIBUS	PROFINET
Service interface (RS485)	✓	✓	✓	✓

Drive characteristics

Feature	ATD401W	ATD410W	ATD420W	ATD430W
Drive characteristics parameterizable in OPEN and CLOSE direction	✓	✓	✓	✓
Friction determined/wear detected during learn run	✓	✓	✓	✓
Reversing in the „OPEN“ and „CLOSE“ directions (with obstruction detection)	✓	✓	✓	✓
PROFIDrive profile for parameterizing drive	-	✓	✓	✓
Assisted Drive, Impulse Drive, Impulse Stop	-	✓	✓	✓

Protective devices

Feature	ATD401W	ATD410W	ATD420W	ATD430W
Connection of type 2 ESPE (light array) acc to. EN 61496-1	✓	✓	✓	✓
Connection of a pressure-sensitive edge acc. to EN 13856-2 (previously 1760-2:2001)	✓	✓	✓	✓

General features

Feature	ATD401W	ATD410W	ATD420W	ATD430W
Door weights of up to 600 kg	✓	✓	✓	✓
Single-button commissioning for learn run to determine door weight and width (blue button!)	✓	✓	✓	✓
Safe limitation of forces and energies in delivery state to 4 J and 75 N	✓	✓	✓	✓
Slow approach to obstruction position, obstruction position monitoring from 30 cm to 5 m	✓	✓	✓	✓
Door widths from 30 cm to 5 m	✓	✓	✓	✓
Certified according to EN 953 and EN ISO 13849-1 PL d	✓	✓	✓	✓
Active braking according to parameterizable braking curve	✓	✓	✓	✓
Opening speed variable between 0.1 and 0.75 m/sec	✓	✓	✓	✓

Article numbers

SIDOOR controllers

Designation	Article No.	Interfaces
ATD401W	6FB1141-1AT11-3WE2	Relay
ATD410W	6FB1141-4AT10-3WE2	USS
ATD420W	6FB1141-2AT10-3WE2	PROFIBUS
ATD430W	6FB1141-3AT10-3WE2	PROFINET

Power supply 36 V

Designation	Article No.	Connection	Degree of protection
SITOP PSU8200*	6EP3446-8SB10-0AY0	3-phase	IP 20
SIDOOR NT40	6FB1112-0AT20-3PS0	2 m power supply cord	IP 54

SIDOOR ATD430W (open)

SIDOOR NT40

SITOP PSU8200

* in conjunction with SENTRON 5SY4108-7

SIDOOR controllers are able to be used with the following motors:

Designation with drive end L = left, R = right	Article No.	Max. driven door weight	Drive shaft design	Degree of protec-tion	Connection to door controller
SIDOOR M3 L SIDOOR M3 R	6FB1103-0AT10-4MB0 6FB1103-0AT11-4MB0	180 kg	Shaft with key (without pinion)Shaft with non-removable pinion for toothed belt S8M (accessories)	IP40	Integrated connecting cable with fixed cable length of 1.5 m
SIDOOR M4 L SIDOOR M4 R	6FB1103-0AT10-3MC0 6FB1103-0AT11-3MC0	400 kg			
SIDOOR M5 L SIDOOR M5 R	6FB1103-0AT10-3MD0 6FB1103-0AT11-3MD0	600 kg		IP54	
SIDOOR MDG180 L SIDOOR MDG180 R	6FB1103-0AT14-4MB0 6FB1103-0AT13-4MB0	180 kg		IP56	Separate motor cables are available in the following lengths: 0.5 m / 1.5 m / 5.0 m / 7.0 m / 10 m / 15 m / 20 m
SIDOOR MDG400 L SIDOOR MDG400 R	6FB1103-0AT14-3MC0 6FB1103-0AT13-3MC0	400 kg			
SIDOOR MDG400 NMS L SIDOOR MDG400 NMS R	6FB1103-0AT14-3MC1 6FB1103-0AT13-3MC1		Shaft with key (without pinion)		

SIDOOR M4

SIDOOR M5

SIDOOR MDG180

SIDOOR MDG400

SIDOOR MDG400 NMS

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