

Sidoor

Brief instruction AT40

Version 1.01, 02/2011 Edition

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2 Legal notes

Warning notice system

This manual contains information which you must observe in order to ensure your own safety, as well as to avoid material damage. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to equipment damage have no safety alert symbol. These notices are shown below in decreasing order of danger.



WARNING

Indicates that death or severe personal injury can result if proper precautions are not taken.



CAUTION

with a triangular safety alert symbol, indicates that slight personal injury may result if proper precautions are not taken.



NOTE

Within the context of these operating instructions, this symbol indicates important information about the product or draws attention to a specific section of the instructions.

3 General safety instructions

Before commissioning

Please read through these instructions carefully. They contain essential information for the installation, use and safety of the equipment.



WARNING

Only appropriately qualified personnel may work on or in the vicinity of this equipment. These people must be thoroughly familiar with all the warnings, notices, and functions of the AT40 door controller described in these operating instructions.

In the context of these operating instructions and warning notices, a qualified person is a person who is familiar with assembling, installing, commissioning, and operating the product, and who has the relevant qualifications, such as:

- Training, instruction or authorization to switch on and off electric circuits and devices/ systems in compliance with safety engineering standards.
- Training or instruction in the maintenance and use of appropriate safety equipment in compliance with safety engineering standards.
- First aid training.

Faultless, safe operation of this equipment requires appropriate transport and storage, professional installation and assembly, as well as careful operation and maintenance. Before commissioning, all electrical connections must be inspected to ensure that all contacts are secure. Before starting work on the door drive, it must be disconnected from the power supply by unplugging the power plug.



NOTE

The illustrations in the instructions refer to Sidoor-User Software version 1.11 and AT40 version 1.04. The illustrations for other versions may differ slightly. power supply as intended cannot be guaranteed. Modifications to the components of the AT system range, motor, controller and mains transformer, result in forfeiture of liability for material defects and possible replacement claims.

4 Introduction

The comfort elevator door drive AT40 is an „intelligent“ door drive with which the cabin and shaft doors can be opened and closed at adjustable speeds and accelerations. It can also be used as a drive for power-actuated protective devices (PL-D) for machines. This maintenance-free drive unit consists of a speed-controlled DC motor with non-self-locking gearing. The power is transmitted by a toothed belt. The toothed belt passes over a deflector pulley, and can be fitted with two door clutch holders. This enables it to drive both single-sided and centrally-opening doors.

The AT40 is currently supplied with the following motors:

M2 - 24 V / 1.8 A motor, suitable for a maximum total door panel weight of 120 kg

M3 - 30 V / 4.0 A motor, suitable for a maximum total door panel weight of 180 kg

M4 - 30 V / 4.0 A motor, suitable for a maximum total door panel weight of 400 kg

The door drive can be ordered with the drive pinion either on the left or right-hand side, please see the drawing in the appendix. Operation of the door drive does not require limit switches. The door width and the OPEN and CLOSED positions are determined automatically. A 7-segment display (H401) on the controller indicates the current operating states.

The appendix includes all the important dimension drawings, an assembly suggestion, and the identification numbers for ordering the individual drive components. These operating instructions are valid for devices as from firmware version 1.04.



NOTE

In the interests of clarity, these brief instructions do not contain full details of all information for all product types and cannot take into account every possible aspect of installation, operation, or maintenance.

You can obtain further information about this product and its use by calling phone no.: +49 (40) 2889-4322. For technical support, or if problems occur which are not covered in sufficient detail in these operating instructions, you can obtain the necessary information by calling the AT Service Hotline, phone: +49 (5 11) 877-1471.

Furthermore, the contents of these operating instructions shall not become a part of or modify any prior or existing agreement, commitment, or legal relationship. All obligations on the part of Siemens arise from the relevant contract of sale, which also contains the complete and solely valid warranty conditions. These contractual warranty conditions are neither extended nor limited by the statements in these operating instructions.



CAUTION

Taking the counterweights into account, the maximum static closing force must not exceed 150 N!



NOTE

After the optimal settings of the parameters have been determined, they should be noted in the configuration record (see section 17). These records should also be kept at hand when asking questions on the Hotline.



NOTE

The switch mode power supplies of the system series AT are fitted with an integrally extruded safety plug in line with VDE. This plug must not be removed (cut off) under any circumstances. The plug forms part of the safety chain of the AT system, in the form of the „emergency stop“ function. The general safety instructions in the operating instructions of all AT controllers state that the system must be disconnected from the mains before starting work on the drive. Permanently connected switch mode power supplies, including those with a separate „emergency stop“ switch, represent a change to the device certified according to EN81/2 and are not permissible.

A permanent connection must not be made for the reasons stated, because it cannot be ensured that the device can be properly disconnected from the mains when required. Changes to the components of the AT system series: motor, controller, switch mode power supply lead to the loss of liability for defects and any claims.

5 Overview of operator controls

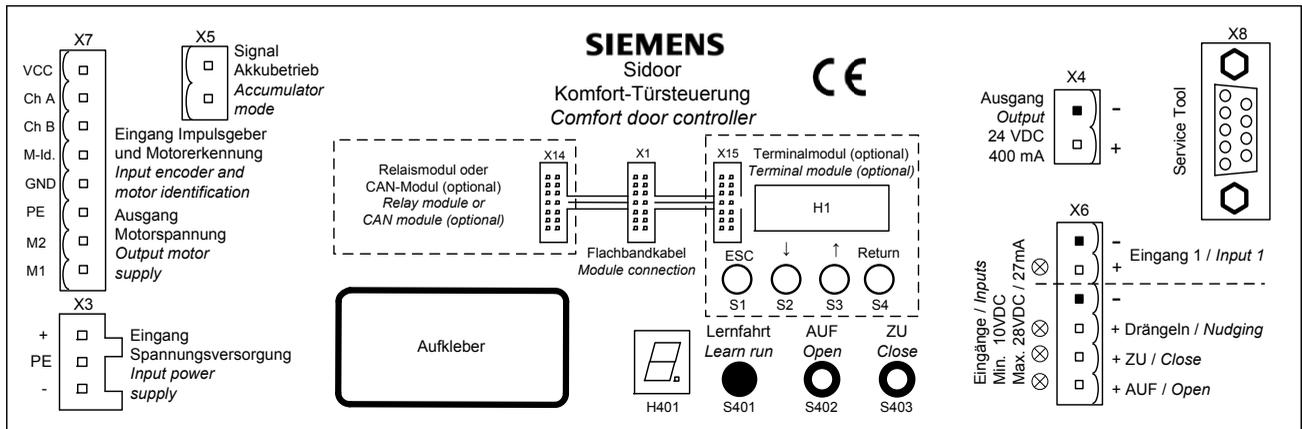


Figure 1

- | | |
|---|--|
| X1: Flat cable connector for the add-on modules | H401: 7-segment display for door status and event codes |
| X3: Connector for switch mode power supply | S401: Learn run |
| X4: Voltage output 24 V / 0.4 A | S402: Service button OPEN |
| X5: Input signal emergency power module | S403: Service button CLOSE |
| X6: Connector for input signals | X14: Flat cable connector for relay module (optional) or CAN module (optional) |
| - Input 1 (settable function) | X15: Flat cable connector to the |
| - Nudge | H1: LCD-Display |
| - Close | S1-S4: Operator buttons for terminal module |
| - Open | |
| X7: Motor plug | |
| X8: Connector for Service Tool and USB adapter | |

6 Terms / abbreviations

Initial speed = reduced speed in the opening and closing directions after power on until normal operation is detected.

Slow end distance open = range of door travel in the vicinity of the OPEN position while opening
Slow start distance open = range of door travel in the vicinity of the CLOSED position while opening

Slow start distance close = range of door travel in the vicinity of the CLOSED position while closing

Slow end distance close = range of door travel in the vicinity of the OPEN position while closing

Slow end speed open = reduced speed in the vicinity of the OPEN position while opening

Slow start speed open = reduced speed in the vicinity of the CLOSED position while opening

Slow start speed close = reduced speed in the vicinity of the CLOSED position while closing

Slow end speed close = reduced speed in the vicinity of the OPEN position while closing

Firmware = software for the AT40 door controller

FE Functional ground
LED light-emitting diode
PE Protective ground

7 Mechanical installation and configuration



CAUTION

Safe operation of the elevator door drive requires proper assembly and commissioning by qualified personnel, with due attention given to the warning notices in these operating instructions. The controller must be disconnected from the power supply before starting any work on the door drive. Only then is immobility of the door guaranteed.

The mechanical assembly and configuration of the elevator door drive are performed in the following steps:

1. Mount the motor on the rubber-metal anti-vibration motor mounting. Then, if necessary, mount the motor on the mounting bracket.
2. Mount the deflector pulley, if necessary with a mounting bracket. Make sure that the drive pinion and deflector pulley are aligned. They should be aligned as precisely as possible with one another (flush).
3. Bolt the two ends of the toothed belt to the door clutch holder. Place the closed toothed belt over the motor pinion and deflector pulley.
4. Tension the toothed belt with the aid of the tensioning device. The correct tension has been reached when the midpoint of the toothed belt can be pushed in by approximately 3 cm for every meter of distance between the drive pinion and the deflector pulley.
5. Mount the controller close to the drive motor (take the length of the cable into account).
6. Mount the switch mode power supply close to the controller (take the length of the cable into account).



CAUTION

The temperature of the housing of the switch mode power supply can rise to over 105 °C in the event of a fault in the controller or a short circuit in the output line of the switch mode power supply. For this reason, the switch mode power supply may only be mounted on surfaces with no risk of ignition, and which cannot be touched by unauthorized persons. The service personnel must be informed of this.

8 Electrical configuration and commissioning



WARNING

Dangerous voltages are inevitable in certain parts of these electrical units during operation. Failure to observe the operating instructions can therefore lead to serious injuries or material damage. It is essential to observe the warning notices. The door movements cannot always be externally controlled while the controller is being commissioned (in particular during the automatic determination of parameters).

The light barrier is not active during the learn run. Therefore an authorized person must be posted

near the door to ensure that no one else can come near the elevator door during commissioning. After commissioning, the forces and energies in the entire elevator system must be checked by the service personnel to ensure that they are within their permissible limits.



NOTE

The motor temperature must not be below 0 °C during the learn run, as otherwise the weight of the door will be incorrectly determined, and the closing and nudge speeds may lie in impermissible ranges.

1. Push the door into the CLOSED position.
2. Open housing lid.
3. Plug in the X7 motor plug.



NOTE

The X6 control inputs plug is not plugged in during commissioning in order to prevent uncontrolled movements.

4. Connect the switch mode power supply to the 230 VAC mains supply. The on-site fuse must not exceed 10 A.
5. Press and hold down the red learn run button (S401).
6. Connect the switch mode power supply output to X3.
7. The learn run starts automatically, and the learn run button can be released. The 7-segment display (H401) shows „H.“. During the learn run, the door is opened about 10 cm, and closed once or twice at slow speed. The friction of the door system is then determined by opening and closing the door once through a range of 25 cm at slow speed. The door then opens and closes through its complete range of movement at reduced speed. After the door has opened about 10 cm, it passes through a short acceleration ramp to determine the weight of the door. In the CLOSED position, the door parameters and the determined door width are saved. The decimal point in the 7-segment display (H401) flashes during the save process. The 7-segment display (H401) shows „u“ when saving has finished.
8. The door can now be opened with the OPEN button S402. The 7-segment display (H401) shows „o“ while the door is opening.
9. Switch off the controller by pulling out the power plug or the X3 plug.
10. Connect the control signals to the X6 connector as shown in the terminal circuit diagram (see Appendix).
11. Connect the light barrier to X6 (see figure 1 or text on cover). If the light barrier input (input 1) is not used, X6 must be wired to X4 as indicated by the lines in the layout diagram. The sensor must be connected here if the DCPS function is used.
12. Plug in terminal connectors X6 and X4.
13. Switch on the controller (plug in the power plug or the X3 plug). The four LEDs alongside the plug connector X3 indicate which control signal is currently active. If there is no obstruction in the range of movement of the door, the LED for the light barrier should be lit continuously.
14. If the control signal CLOSE is present, the door moves into the CLOSED position at initial speed. If an OPEN control signal is present, the door moves into the OPEN position at initial speed.
15. Once the controller has detected the door OPEN and CLOSED end positions, the subsequent opening and closing movements proceed at normal speed once again.
16. The door travel values can be matched to the individual door for specific applications with the aid of the integrated terminal module or the Service Tool (optional). Parameters can also be changed with the aid of the Sidoor-User Software (optional, part of the Sidoor Software Kit). Its operation is described in the Appendix to these instructions. Simple settings can also be made with the three buttons and the 7-segment display on the controller (see chapter 11).

9 Travel curve

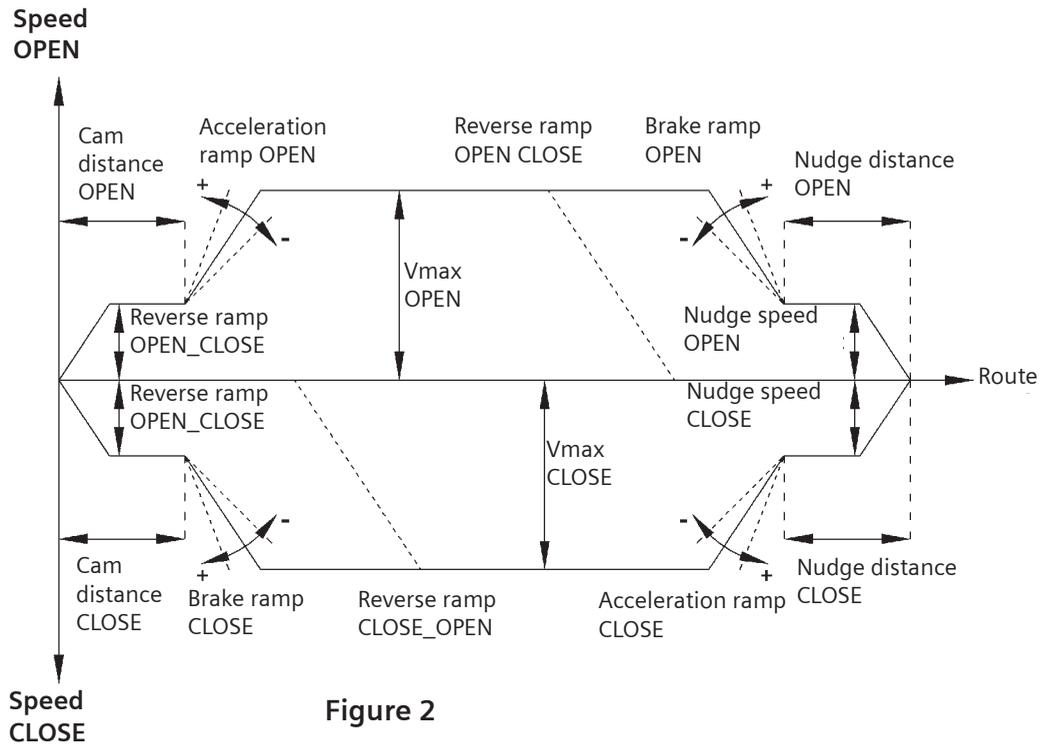


Figure 2

Reversing ramp OPEN_CLOSE = reversal of movement from the OPEN to the CLOSE direction.
 Reversing ramp CLOSE_OPEN = reversal of movement from the CLOSE to the OPEN direction.

When reversing from the open to the close direction, the door is braked with the reversing ramp OPEN_CLOSE, and starts the closing movement with the acceleration ramp CLOSE.



WARNING

After activation of the elevator door, the tolerated forces and powers have to be tested on the heaviest door in the whole system (elevator) by the service personnel and if in excess, it has to be adjusted to the threshold values.

The speed limit curve is the characteristic used to determine the maximum permissible door speed V_{max} as a function of the total door panel mass. In accordance with EN 81 the maximum kinetic force of the door in the closing direction may not exceed 10 Joule.

In the switched-off reverse direction the maximum kinetic force may not exceed 4 Joule.

Reductions or increases in the cam belt ratio are not allowed, because it could result in changes to the kinetic forces or static powers on the door.

The door width is then no longer valid.

10 Profiles AT40 firmware version 1.04

10.1 Motor 2

Parameter	Unit	P1	P2	P3	P4	P5	P6
Slow end distance open	mm	25	20	20	25	25	25
Slow start distance open	mm	30	30	30	40	50	30
Slow start distance close	mm	20	0	0	0	0	20
Slow end distance close	mm	40	30	30	40	50	40
Maximum speed open	mm/s	500	300	400	500	500	500
Slow end speed open	mm/s	40	40	50	60	70	40
Slow start speed open	mm/s	60	40	50	60	70	60
Slow Initial speed open	mm/s	90	50	60	70	90	90
Maximum speed close	mm/s	250	150	200	300	400	150
Slow start speed close	mm/s	60	40	50	60	70	60
Slow end speed close	mm/s	40	40	50	60	70	40
Slow Initial speed close	mm/s	90	50	60	70	90	90
Nudging speed	mm/s	150	100	100	150	150	150
Acceleration ramp open	mm/s ²	850	600	700	850	850	850
Deceleration ramp open	mm/s ²	600	500	600	800	850	850
Reversal ramp open/close	mm/s ²	850	500	600	800	850	850
Acceleration ramp close	mm/s ²	500	500	600	800	850	500
Deceleration ramp close	mm/s ²	500	500	600	800	850	500
Reversal ramp close/open	mm/s ²	850	600	700	850	850	850
Idle torque open	A	1	0,8	1	1,2	1,3	1
Idle torque close	A	1	0,8	1	1	1	1
Peak torque closed	A	2	2	2,4	2,6	3	2,5
Limit force open	N	120	120	120	120	120	120
Limit force close	N	110	110	110	110	110	110
Limit force end close	N	110	110	110	110	110	110
Limit force close nudging	N	70	70	70	70	70	70

- P1: M2 default profile
- P2: M2 min. profile 1
- P3: M2 min. profile 2
- P4: M2 max. profile 1
- P5: M2 max. profile 2
- P6: M2 special profile

10.2 Motor 3

Parameter	Unit	P1	P2	P3	P4	P5	P6
Slow end distance open	mm	30	20	20	30	30	30
Slow start distance open	mm	30	30	30	40	40	30
Slow start distance close	mm	20	0	0	0	0	0
Slow end distance close	mm	40	30	30	40	40	30
Maximum speed open	mm/s	650	400	500	650	650	650
Slow end speed open	mm/s	40	40	50	60	70	70
Slow start speed open	mm/s	60	40	50	60	70	70
Slow Initial speed open	mm/s	90	50	60	70	90	90
Maximum speed close	mm/s	319	250	300	319	319	250
Slow start speed close	mm/s	60	40	50	60	70	50
Slow end speed close	mm/s	40	40	50	60	70	50
Slow Initial speed close	mm/s	90	50	60	70	90	60
Nudging speed	mm/s	150	100	100	150	150	100
Acceleration ramp open	mm/s ²	1300	800	1000	1200	1400	1400
Deceleration ramp open	mm/s ²	600	600	800	1000	1200	1200
Reversal ramp open/close	mm/s ²	1200	600	800	1000	1200	1200
Acceleration ramp close	mm/s ²	500	600	800	1000	1200	500
Deceleration ramp close	mm/s ²	500	600	800	1000	1200	500
Reversal ramp close/open	mm/s ²	850	800	1000	1200	1400	1200
Idle torque open	A	1	0,7	1	1,2	1,5	1,2
Idle torque close	A	1	0,7	1	1,2	1,5	1,2
Peak torque closed	A	3	2	2,5	3	3	3
Limit force open	N	300	300	300	300	300	300
Limit force close	N	90	90	90	90	90	90
Limit force end close	N	90	90	90	90	90	90
Limit force close nudging	N	70	70	70	70	70	70

P1: M3 default profile

P2: M3 min. profile 1

P3: M3 min. profile 2

P4: M3 max. profile 1

P5: M3 max. profile 2

P6: M3 special profile

10.3 Motor 4

Parameter	Unit	P1	P2	P3	P4	P5	P6
Slow end distance open	mm	30	20	20	30	30	30
Slow start distance open	mm	30	30	30	40	40	30
Slow start distance close	mm	20	0	0	0	0	0
Slow end distance close	mm	40	30	30	40	40	30
Maximum speed open	mm/s	600	400	500	650	750	650
Slow end speed open	mm/s	40	40	50	60	70	70
Slow start speed open	mm/s	60	40	50	60	70	70
Slow Initial speed open	mm/s	90	50	60	70	90	90
Maximum speed close	mm/s	319	250	300	319	319	250
Slow start speed close	mm/s	60	40	50	60	70	50
Slow end speed close	mm/s	40	40	50	60	70	50
Slow Initial speed close	mm/s	90	50	60	70	90	60
Nudging speed	mm/s	150	100	100	150	150	100
Acceleration ramp open	mm/s ²	1300	800	1000	1200	1400	1400
Deceleration ramp open	mm/s ²	600	600	800	1000	1200	1200
Reversal ramp open/close	mm/s ²	1200	600	800	1000	1200	1200
Acceleration ramp close	mm/s ²	500	600	800	1000	1200	500
Deceleration ramp close	mm/s ²	500	600	800	1000	1200	500
Reversal ramp close/open	mm/s ²	850	800	1000	1200	1400	1200
Idle torque open	A	1	0,7	1	1,2	1,5	1,2
Idle torque close	A	1	0,7	1	1,2	1,5	1,2
Peak torque closed	A	3	2	2,5	3	3	3
Limit force open	N	300	300	300	300	300	300
Limit force close	N	70	70	70	70	70	70
Limit force end close	N	70	70	70	70	70	70
Limit force close nudging	N	70	70	70	70	70	70

- P1: M4 default profile
 P2: M4 min. profile 1
 P3: M4 min. profile 2
 P4: M4 max. profile 1
 P5: M4 max. profile 2
 P6: M4 special profile

11 Electrical configuration with the minimal editor

The minimal editor is a tool for changing the parameters of an AT40 controller if the terminal module, Service Tool or Sidor-User Software are not available. In this case, the learn run button (S401) and the two service buttons (S402, S403) are assigned second functions. The LED display (H401) is used to visualize messages.

Activating the minimal editor requires a specific button pressing procedure, which can only be done after a mains reset. The detailed operation is as follows:

- a) The OPEN and CLOSE buttons must be pressed simultaneously when the program starts (supply voltage switched on). An 8 appears in the display for approx. 5 seconds as confirmation.
- b) As soon as the display stops, the user must release both buttons (time window approx. 3 seconds), and not touch them until the time window has ended.
- c) A ,C' is now shown in the display to confirm successful activation of the minimal editor.

The minimal editor allows two settings: the selection of a fixed profile or the joint setting of the closing forces. A value is set with the service buttons (S402, S403). The data are accepted by pressing the learn run button (S401) for more than two seconds. Successful saving is confirmed by a dot in the LED display. Briefly pressing the learn run button merely switches to the other parameters without the changing the value.

The display of a value alternates between a numerical value and an identifying code letter (,A' for forces in the closing direction or ,C' for the selection of a profile). Values between 1 and 6 can be used to set the profile (1 for the default profile and 6 for profile no. 6). The closing forces are set in the form of a counterweight, whereby 1 kg is simply taken as 10 N. The input can range from 0 to 8, where 0 stands for „no counterweight“ and 8 for an „8 kg counterweight“. The input of the counterweight changes the closing force, as it is subtracted from the maximum value of 150 N. The setting 4 therefore reduces the closing force to 110 N ($150\text{ N} - 40\text{ N} = 110\text{ N}$), whereas the setting 0 activates the maximum closing force of 150 N. The minimal editor is exited by switching the power supply voltage off and on again.



WARNING

So that the closing speed and nudge speed can be limited as a function of the door weight, it is essential that a new learn run is made after taking over another profile. (Click the S401 button to start the run.)



WARNING

Selecting a profile overwrites the input of the counterweight. Therefore the value for the counterweight (parameter ,A') must be set last.

12 The relay contacts (optional)

The relay contacts of the optional relay module can be used to transmit the following door conditions

to the main lift controller:

X11 (Pin1 and Pin3 closed) - The door has reached the "CLOSE" position

X12 (Pin1 and Pin3 closed) - The door reverses because of an obstacle, an interrupted light barrier or a call for the door to open.

X13 (Pin1 and Pin3 closed) - The door has reached the "OPEN" position



WARNING

The door controller is not a safety mechanism. Therefore the relay contacts must not be used for the elevator safety circuit.

When the housing cover is opened, only a safety extra-low voltage of less than 42 V may be present. The protective cover provided must be used when a higher voltage (maximum 230 VAC) is connected to the relay module. The following must be observed: The cables connected must be suitable for the voltage used and have appropriate (double or reinforced) insulation.

Cables with an external diameter of 6 to 7 mm are recommended.

Inside the cover, the single-insulation must be removed from the single cores at least 5 mm from the cable entry openings, and the cores connected as short as possible to the terminal connectors X11 (CLOSE signal) and X13 (OPEN signal).

The cables must be secured inside the plastic cover against being pulled out. A cable tie, which has been pulled tightly around the cable, prevents the cable from being pulled through the oval opening in the relay cover (see photo 1). The cable tie must be applied in such a way that a minimum of 5 mm of the outer cable jacket lies inside the protective cover.

Components of the controller and connecting cable as well as the motor plug and its wires may only come in contact with the additional (or reinforced) insulation of the current-carrying wires.

Networks with different voltages (e.g. 24 V and 230 V) must not be connected to the relay module. Additional strain relief is provided by cable ties at the fixing points provided in the housing.

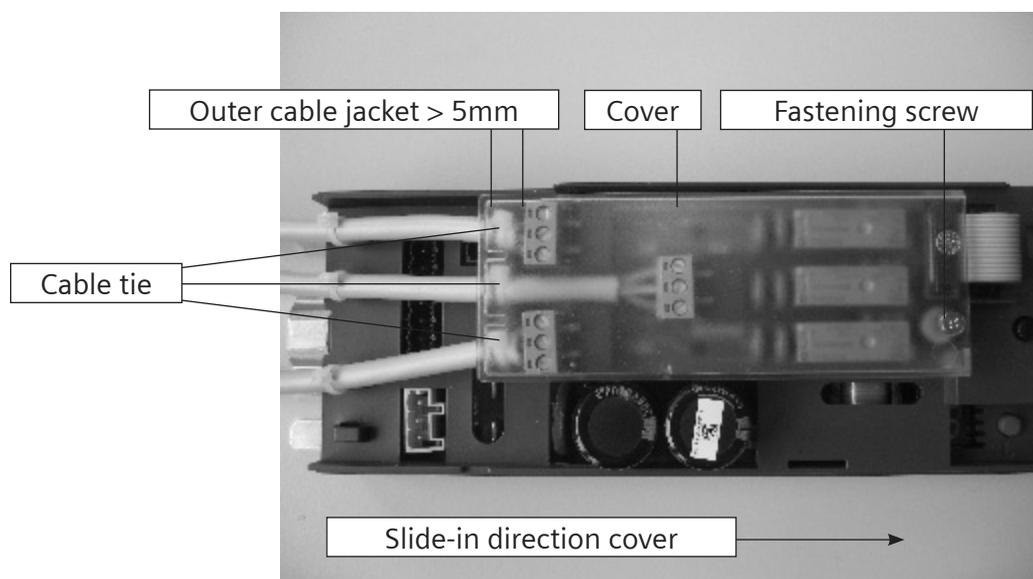


Photo 1: Protective cover for relay module

13 CAN module (optional)

The CAN module enables the AT40 controller to be connected to a CAN bus. The interface is implemented according to CiA Draft Standard 301, profile 417. The Service Tool must be used to set the power of command to CAN so that the controller can be addressed via the CAN bus. This deactivates the digital inputs. The factory settings of the major parameters are:

Parameter	Factory setting
Command output	Digital IO (digital inputs)
CANopen node ID	7
Baud rate	Automatic
Door number	1

When the baud rate is set to „automatic“, the CAN module automatically determines the baud rate on the CAN bus. To do this, the CAN module must have received some valid CAN telegrams. The LED H3 flashes quickly at 5 Hz while the baud rate is being automatically determined. All LED signals are listed in the following table.

LED signal (H3)	CANopen state machine
Off	"Pre-operational" or "Stopped" and no CAN telegrams are received.
Flashes briefly once per second	"Pre-operational" or "Stopped" and CAN telegrams are received.
Goes out briefly once per second	"Operational" and CAN telegrams are received
On	"Operational" and no CAN telegrams are received
Flashes rapidly	Automatic determination of baud rate

The connection can be made via the RJ45 socket (X15) and/or the terminal connector (X16). Each of the ferrites included in the scope of delivery must be laid around a CAN line near the controller. The pin assignment is listed in the following table.

Pin	Signal	Description
1	CAN_H	CAN high bus cable
2	CAN_L	CAN low bus cable
3	GND	CAN ground
4	-	Reserve
5	-	Reserve
6	Shield	CAN cable shield
7	GND	CAN ground
8	-	Reserve

Connector X15

Pin	Signal	Description
1	CAN_H	CAN high bus cable
2	Shield	CAN cable shield
3	CAN_L	CAN low bus cable

Connector X16

The bus can be terminated with 120 ohms via the switch S1.

The EDS file is available on the www.sidoor.com Internet page.

In addition to the CAN interface, there are also two relays on the CAN module. They can switch a maximum of 30 V and 0.5 A. The pin assignment is:

Pin	Assignment	Description
1, 2	NO contact. CLOSED position	The relay switches on when the controller has detected the CLOSED position and the pulse generator ceases to output pulses. LED H1 is on.
3, 4	NO contact. OPEN position reached.	The relay switches on when the distance of the door from the OPEN position falls below 2 cm. LED H2 is on.

Connector X11

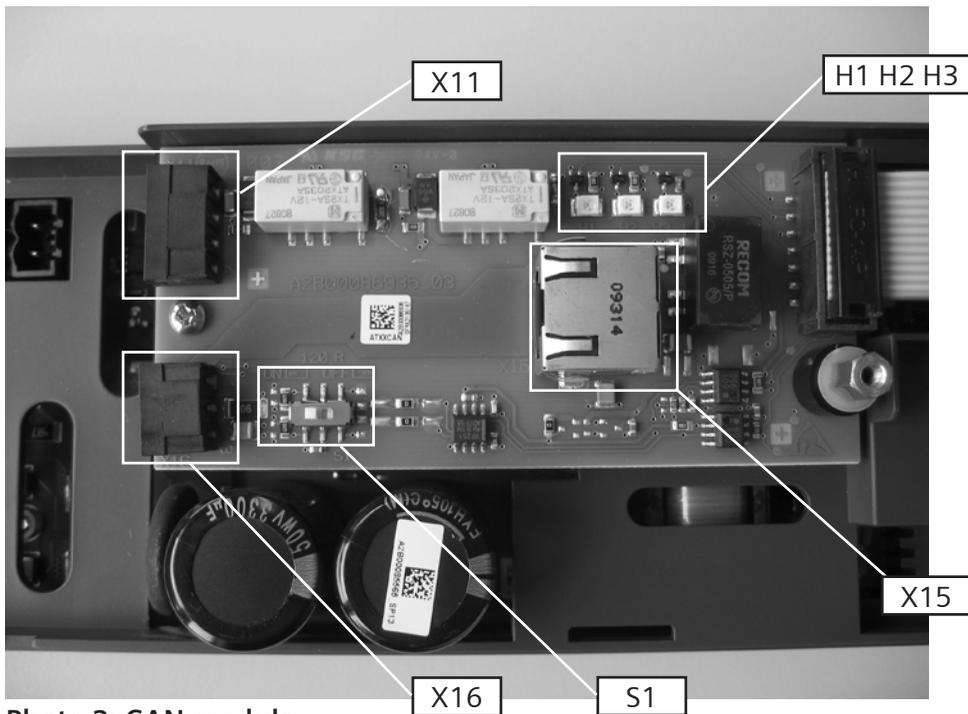


Photo 2: CAN module

ESD protective measures. The protective cover may only be opened after the controller has been disconnected from the mains supply and the user has been grounded (this is required in order to connect the CAN cable or to activate/deactivate the terminating resistor).

A maximum of 32 nodes can be connected to the CAN bus.

A folding ferrite (RFC-6 Kitagawa) must be attached to the start and finish of the CAN cable (outside the housing).

14 Parameter configuration with the Terminal Module or User Terminal

The (integrated) terminal module, Service Tool (optional), or the Sidor-User Software (optional, part of the Sidor Software Kit) can be used equally well to diagnose and set parameters. The Service Tool and the USB adapter can be connected to X8 on the controller with the associated cable. The keys and tool buttons have identical inscriptions and functions.



Return key - jumps to the next menu below



Escape key - jumps back to the higher-level menu



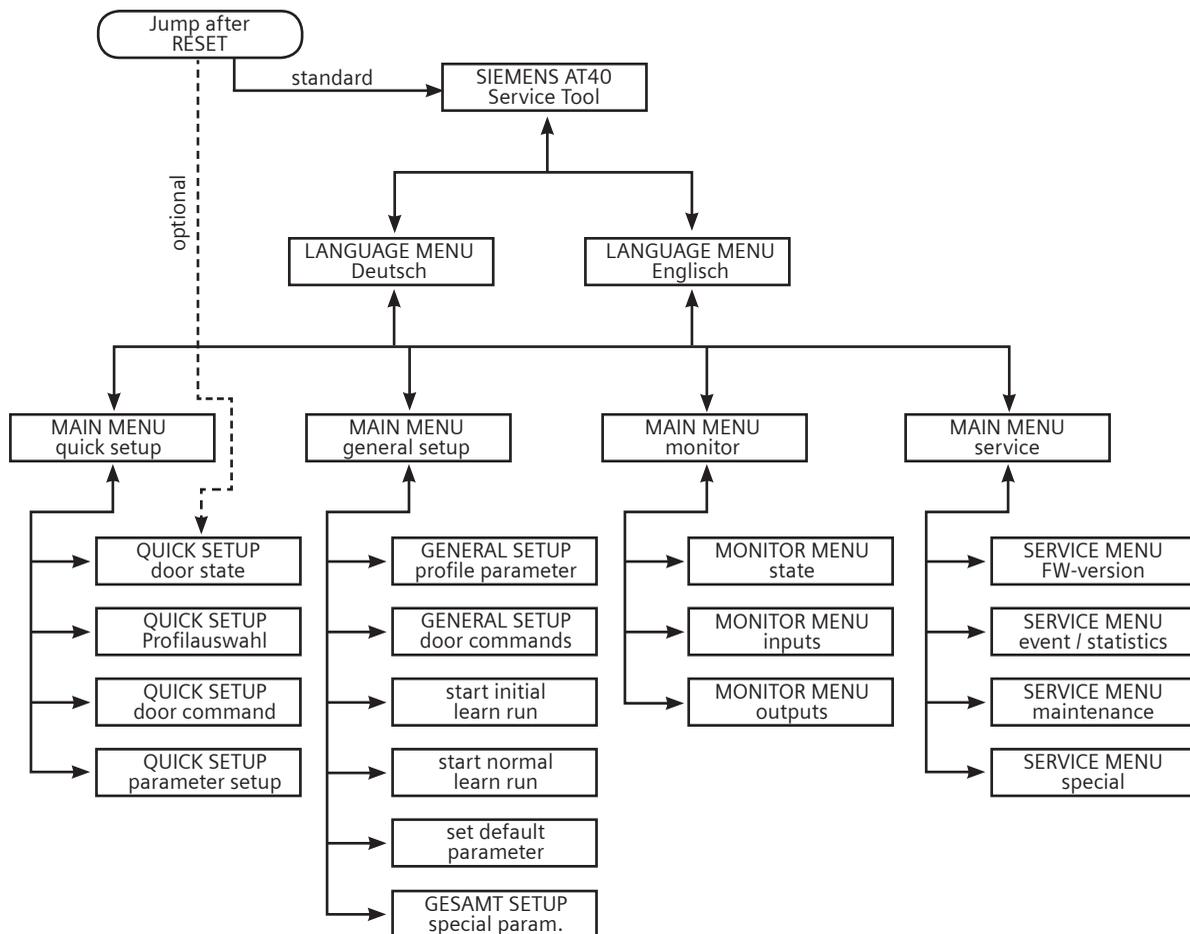
Menu selection key - increases a parameter value



Menu selection key - reduces a parameter value

Parameters can be changed in the „MAIN MENU QUICK ADJUSTMENT→ Parameter Setting“ and in the „MAIN MENU TOTAL ADJUSTMENT→ Profile Parameter“. The desired parameter is selected with the „↑“ or „↓“ key, and activated for setting with the Return key „↵“ (parameter value flashes). The parameter value can then be increased or reduced by pressing the corresponding key (see above). The value is accepted by pressing the Return key again.

Menu of the Service Tool:



15 Operating state display

The 7-segment display H401 indicates the following operating states:

Display	Meaning
0	Light barrier signal present (light barrier interrupted)
1	RAM, EEPROM or CPU error (system error)
2	Braking chopper defective
3	Error in the second shutdown route
4	Increased hold-open time with longer motor switch-on time
5	Motor undefined*
6	Motor blocked in direction of closure
7	Error in pulse generator
8	Minimal editor is started (press the service buttons OPEN and CLOSE simultaneously).
9	Motor overcurrent
A	Minimal editor (force setting) active
b	Reserve
c	Blockage while opening
C	Minimal editor (profile setting) is active
d	Door remains stationary during initialization run (no OPEN or CLOSE signal)
E	Motor overvoltage
F	Motor undervoltage
h	Reserve
H	Parameter determination (learn run)
n	Output stage defective
L	Ammeter error
o	Function OK
P	Parameter error (error during learn run)
r	CAN error
u	Door closed
U	Maximum door weight exceeded
_	Controller waiting for learn run

*If a different motor version is used, commissioning must be repeated as described in these operating instructions.

16 Terminal circuit diagram of control inputs

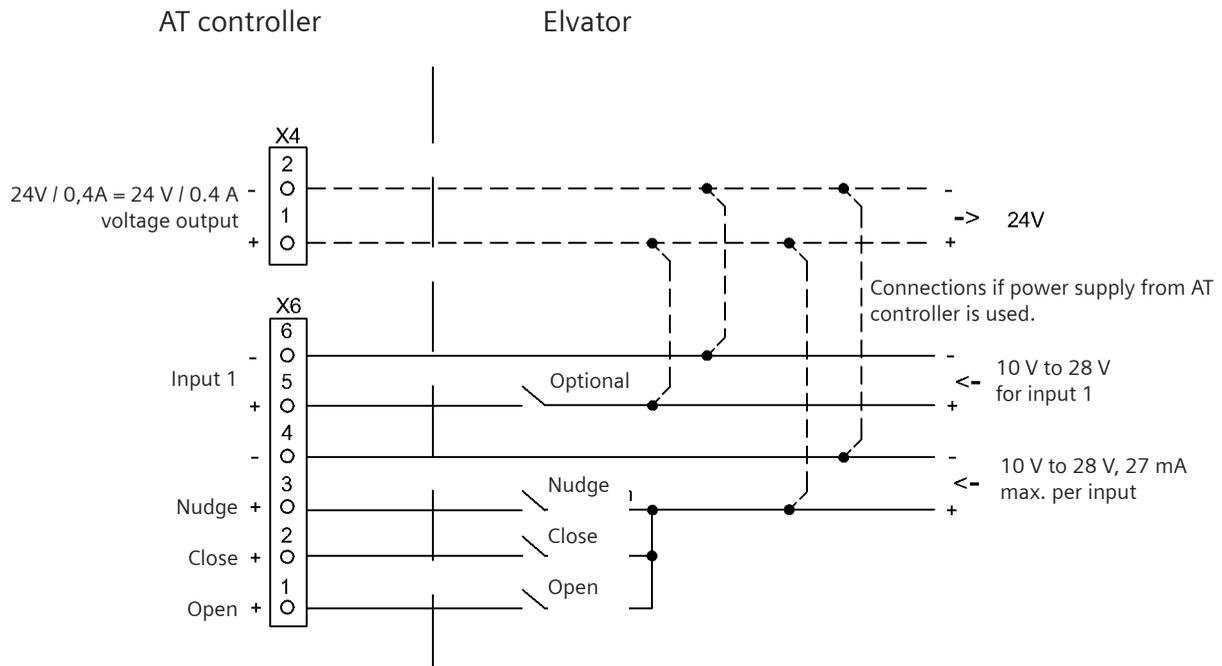


Figure 3

Nudge = simultaneous activation of the CLOSE and Nudge commands (effective only in the closing direction).



NOTE

The X4 24 V voltage output must not be connected to an external voltage potential, for example a higher-level elevator controller.

The X4 connector 2 (minus 24 V) can be connected to the PE.

17 Configuration record

Please have your questions ready when you call the Hotline!

Hotline: (05 11) 8 77-14 71 Fax: (05 11) 8 77-16 30

Function	Unit	Motor 2 (24 V/1,8 A; up to 120 kg door weight)		Motor 3 (30 V/4 A; up to 180 kg door weight)		Set value by installer
		Setting range	Factory setting	Setting range	Factory setting	
Slow end distance open	mm	0...100	25	0... 100	30	mm
Slow start distance open	mm	0...100	30	0... 100	30	mm
Slow start distance close	mm	0...100	20	0... 100	20	mm
Slow end distance close	mm	0...100	40	0... 100	40	mm
Maximum speed open	mm/s	100...500	500	100... 650	650	mm/s
Slow end speed open	mm/s	30...90	40	30... 90	40	mm/s
Slow start speed open	mm/s	30...90	60	30... 90	60	mm/s
Slow initial speed open	mm/s	30...90	90	30... 90	90	mm/s
Maximum speed close	mm/s	100...500	250	100... 500	319	mm/s
Slow start speed close	mm/s	30...90	60	30... 90	60	mm/s
Slow end speed close	mm/s	30...90	40	30... 90	40	mm/s
Slow initial speed close	mm/s	30...90	90	30... 90	90	mm/s
Nudging speed	mm/s	50...250	150	50... 250	150	mm/s
Acceleration ramp open	mm/s ²	300...850	850	300... 1400	1300	mm/s ²
Deceleration ramp open	mm/s ²	300...850	600	300... 1400	600	mm/s ²
Reversal ramp open/close	mm/s ²	300...850	850	300... 1400	1200	mm/s ²
Acceleration ramp close	mm/s ²	300...850	500	300... 1400	500	mm/s ²
Deceleration ramp close	mm/s ²	300...850	500	300... 1400	500	mm/s ²
Reversal ramp close/open	mm/s ²	300...850	850	300... 1400	850	mm/s ²
Idle torque open	A	0...1	1	0... 2,5	1	A
Idle torque close	A	0...1,5	1	0... 2,5	1	A
Peak torque close	A	0...5	2,5	0... 5	3	A
Limit force open	N	70...120	120	70... 300	300	N
Limit force close	N	70...120	110	70... 230	90	N
Limit force end close	N	70...120	110	70... 230	90	N
Limit force close nudging	N	70...120	70	70... 230	90	N

Function	Unit	Motor 4 (30 V/4 A; up to 400 kg door weight)		Motor...		Set value by installer
		Setting range	Factory setting	Setting range	Factory setting	
Slow end distance open	mm	0...100	30			mm
Slow start distance open	mm	0...100	30			mm
Slow start distance close	mm	0...100	20			mm
Slow end distance close	mm	0...100	40			mm
Maximum speed open	mm/s	100...750	600			mm/s
Slow end speed open	mm/s	30...90	40			mm/s
Slow start speed open	mm/s	30...90	60			mm/s
Slow initial speed open	mm/s	30...90	90			mm/s
Maximum speed close	mm/s	100...500	319			mm/s
Slow start speed close	mm/s	30...90	60			mm/s
Slow end speed close	mm/s	30...90	40			mm/s
Slow initial speed close	mm/s	30...90	90			mm/s
Nudging speed	mm/s	50...250	150			mm/s
Acceleration ramp open	mm/s ²	300...1400	1300			mm/s ²
Deceleration ramp open	mm/s ²	300...1400	600			mm/s ²
Reversal ramp open/close	mm/s ²	300...1400	1200			mm/s ²
Acceleration ramp close	mm/s ²	300...1400	500			mm/s ²
Deceleration ramp close	mm/s ²	300...1400	500			mm/s ²
Reversal ramp close/open	mm/s ²	300...1400	850			mm/s ²
Idle torque open	A	0...2,5	1			A
Idle torque close	A	0...2,5	1			A
Peak torque close	A	0...5	3			A
Limit force open	N	70...500	300			N
Limit force close	N	70...230	70			N
Limit force end close	N	70...230	70			N
Limit force close nudging	N	70...230	70			N

Parameters should always be adjusted during normal operation with the door in the CLOSED position, because the controller then accepts the values immediately.

SIEMENS**Industry**

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 Am Brabrinke 14
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Telephone: +49 511-877-1471
 Fax : +49 511-877-74-1471
 E-mail: hotline_sidoor@siemens.com

Sender: _____ Customer No.: _____ Name/Company: _____ Street: _____ Contact: _____ Tel. No.: _____ Fax No.: _____	<div style="border: 1px solid black; width: 150px; height: 100px; margin: 0 auto;"></div> <p>Stamp/signature</p>
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Please completet this box only if required:

Delivery address: _____
 Street: _____
 Zipcode/Town: _____

Return slip/service order

Article designation: _____ **Serial Nr.:** _____

- Warranty or repair if cost-effective
- Repair chargeable according to cost estimate
- Chargeable repair if the following amount is not exceeded. _____ €

Description of fault: _____

When does the fault occur?

- Constantly At times
- Temperature-dependent Knocking-dependent

Other information: _____

EN**Please turn over!**

Time of fault

- Installation
- Maintance
- Malfunction

Operain hours (years)

Control unit
 Motor

- Control unit AT15
- Control unit AT18
- Control unit AT20
- Control unit AT25
- Control unit AT40

Motor AT15

24V 120Kg

Motor AT20/AT25

- 30V 400Kg
- 40V 120Kg

Motor AT18/AT40

- 24V 120Kg
- 24V 180Kg
- 30V 180Kg
- 30V 400Kg

Type of fault

7-segment Display: _____

Sporadic fault: _____

Fault during teach-in: _____

Fault during normal operation: _____

Miscellaneous: _____

- Door (horizontal)
- Weight [kg]
- Number of sections
- Locking centrally
- Locking laterally

- Door (vertical)
- Weight [kg]
- Number of slats

Is the original Siemens conversion kit used?? Yes No

Is further gear reduction used? Yes No

Operating voltage present on the control unit (terminal ST1) Yes No

www.siemens.com/sidoor

Contact

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