



**Operating Instructions**  
for automatic swing doors  
**SWINGDOOR Power Drive 1401**



# Contents

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# 1 About these Instructions

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## Adressee/Status

These instructions are intended for operators and users of automatic TORMAX door system; they assume that the system was installed and tested by specialist staff and is therefore ready for operation.

## Area of Application

This document applies to swing doors with TORMAX automatic opening systems, type:

### SWINGDOOR Power Drive 1401

## Explanation of Symbols



We have marked all passages in these Operating Instructions relating to your safety with this symbol.



This symbol warns you about electric currents.

In order to ensure that the door system functions perfectly you **MUST** be sure to follow the instructions in text which is highlighted in grey. Failure to do so can result in damage.



Functions marked with this symbol correspond to the basic settings. However, they can be reprogrammed by installation staff.



This symbol indicates optional components which are not installed in all systems.

## Operating Mode Symbols



Operating mode OFF



Operating mode AUTOMATIC 1



Operating mode AUTOMATIC 2



Operating mode EXIT



Operating mode OPEN

**P** Operating mode MANUAL OPERATION

## Languages

These Instructions are available in various languages. Please enquire at your TORMAX dealer.

## Other Applicable Documents

The tests which must be carried out during the system's periodic checks are listed in the system test book (see Section 4.1 for further information). The test book should be kept close to the relevant door.

Test book for

Germany:

T-755 d

Switzerland:

T-879 d (ch)

International:

T-895 d

# 2 Safety

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## 2.1 General Safety and Accident Prevention Instructions

The Operating Instructions – and particularly the following safety instructions – must be carefully read and observed prior to commissioning.



Instructions to which your attention is specially drawn (see Section 1 for explanations of the symbols) in these Operating Instructions **MUST** be observed.

### Use for the Intended Purpose

The TORMAX drive is built using state of the art technology and recognised safety rules; it is intended exclusively for use with automatic internal and external doors in pedestrian areas of, for example, banks, restaurants, hotels, hospitals, public buildings, historic buildings, offices and factory buildings.

Any other use over and above this use is considered to be not for the purpose intended and can lead to bodily injury as well as damage to the user's or third party property. The manufacturer is not liable for such injury or damage which results from use not for the purpose intended; the risk for such events rests solely with the operator.

### Basic Safety Measures – Appropriate Behaviour

Only use the system if it is in perfect condition. Arrange for malfunctions which can prejudice safety to be rectified immediately by specialist staff.

### Relevant Regulations

The operating, maintenance and service conditions are to be maintained as directed by the manufacturer.

In addition to the operating instructions, the relevant legal regulations as well as safety-technical and work-medical regulations for accident prevention and environment protection of the country in which the door system is operated, are also applicable.

Unauthorized alterations to the system exempt the manufacturer from any liability for resulting damage.

## 2.2 Organisational Measures

### General

Doors are to be operated and maintained in such a way that the safety of users, maintenance personnel or a third party is ensured at all times.



If malfunctions occur in safety facilities (e.g. safety sensors for monitoring the swing area), these features must not be deactivated so that the door can continue to be used.

### Servicing TORMAX Door Systems

The necessary instructions (Operating Instructions) must be available to all persons who operate, check or maintain the doors.

Personnel directed to carry out any activity on the door must have first read and understood the Operating Instructions.

Mechanical and electrical work on the door system and its controls may only be carried out by skilled staff or by specialists from TORMAX dealer. All other persons are prohibited from carrying out repairs or modifications on the system.

### Designations

Notices on doors and switch-gear must be clearly legible, easily understood and durable.

Information necessary to ensure personal safety (marking of the escape routes) and for maintenance purposes must be displayed.

## 2.3 Safety Devices

Following a hazard analysis, TORMAX has provided appropriate safety devices in the control system of this type of drive to protect against bodily injury and material damage. These devices must be state of the art and comply with the Machinery Directive 98/37/EEC, CEN and CENELEC standards and the corresponding national requirements.



### Electronic Reversing

An electronic switch monitors the door when it is closing and opening. If the door encounters an obstruction when opening, it stops for a short period and then closes. If it encounters an obstruction when closing, it waits for the safety period and then attempts to close once again.

The reversing movement can be switched off by the installer.

## External Safety Devices

### **Safety in the Opening Direction ♦ (safety sensor system ♦ etc.)**

The safety device on the door leaf which moves with the leaf recognises persons or objects in the door leaf's opening area.

The opening movement is immediately interrupted and the door closes when the safety system is activated.

### **Safety in the Closing Direction ♦ (safety sensor system ♦ etc.)**

The safety device on the door leaf which moves with the leaf recognises persons or objects in the door leaf's closing area.

The door immediately opens, waits for the safety period and then closes again when the safety system is activated.

### **Safety for the Swing Area ♦ (safety reflective light scanner ♦, safety mat ♦ etc.)**

The safety device recognises persons or objects in the door's swing area.

The door is prevented from moving if a safety device has been activated.

If the door is already moving, the opening or closing movement which has already started is completed.

# 3 Operation

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## 3.1 Commissioning



Unlock the mechanical lock (if fitted).

### **Switching on**

Systems without an operating mode switch ♦:

- Switch on the power supply (power plug and/or system switch).

Systems with an operating mode switch ♦:

- Switch on the power supply (power plug and/or system switch).
- Select the required operating mode on the operating mode switch (e.g. AUTOMATIC).

### **Recommissioning**

If a door is taken out of commission for a lengthy period, it must be checked as in Section 4.2 prior to being recommissioned and, if necessary, repaired to ensure that the safety of persons is always assured.

## 3.2 Function in Normal Operations

The TORMAX door drive opens and closes the door automatically. The user can influence the door's behaviour by the selection of the operating mode ◆ on the operation mode switch ◆ (see section 3.5). The operating mode OFF must be selected before locking the door mechanically.

### Triggering the Opening Movement of the Door

The door is prompted to open automatically by opening activators such as:

- Sensors ◆, motion detectors ◆, contact mats ◆ etc.

or manually:

- with "Push-and-Go", buttons ◆, key switches ◆, manual switches ◆ etc.

### Safety Devices

Door systems may only be operated if all safety devices are available and operational.

## 3.3 Function in the Event of a Power Failure

In the event of a power, failure the door is moved into the pre-defined end position (open or closed) by the spring incorporated into the drive.

### Emergency Opening/Closing

The automatic door can be activated manually without altering the operating mode.

### Emergency Power Supply (battery module) ◆

The emergency power supply will continue to operate the door in the pre-set operating mode for a limited period. The emergency power supply is automatically switched off when the batteries have been exhausted.

The door operates as normal without further intervention when power is restored; the batteries are automatically re-charged.

Further information is contained in the Operating Instructions for the battery module.

## 3.4 Decommissioning

### Monitoring

The TORMAX processor control system monitors a large number of the door's functions and displays malfunctions on the control panel ◆ (see "Trouble-Shooting" in section 5).

If the malfunction is relevant to safety, the control system automatically places the door drive in a safe condition.

## Deactivation in the Event of a Malfunction

Door drives must be deactivated as soon as malfunctions or faults occur which prejudice the safety of persons. You must arrange for the malfunctions or defects to be rectified immediately by qualified staff. The door is deactivated by switching off the power supply.

Doors may only be approved for re-use if the fault has been rectified (repair) or the danger removed (the drive separated from the power supply semi-permanently)

You must ensure that doors on emergency exits can be used as an escape route at all times.

Components and notices which no longer provide the required safety due to wear or damage must be replaced or repaired by a TORMAX dealer.

## 3.5 Operating Modes



### Operating Mode OFF

The door is held closed by the drive. Systems which have an electric door lock are also locked. The door will only re-open after receiving an impulse from a key-switch.

If the door is changed to the OFF operating mode when it is opening or is already open, the hold-open time is interrupted and the door immediately closes.

In the case of double swing doors, the door can only be switched to the operating mode OFF when the leaves are overlapped.



### Operating Mode AUTOMATIC 1

The door can behave differently depending on the settings installed by the installer during commissioning:

#### “Push-and-Go”

If the door is manually pushed in the opening direction, it reacts as if to a command to open: it opens automatically, waits for the hold-open time and then closes.

#### “Push-and-Close”

If the door is clearly moved in the closing direction (operating mode OPEN, hold-open time running, step control), it closes automatically.

#### Time Control:

If the door receives a valid impulse, it opens, waits for the hold-open time and then closes.



#### Step Control:

If the door receives a valid impulse, it opens and remains open. It closes immediately at the next valid impulse.

### Systems with an Electric Door Lock ◆:

The lock unlocks at every valid opening impulse. The door lock must be manually unlocked with the door button before it is possible to open the door with the “Push-and-Go” system.



### Operating Mode AUTOMATIC 2

Corresponds to operating mode AUTOMATIC 1 but a different sequence of movements can be set by the installer during commissioning (e.g. a slower opening movement, different open positions and a longer hold-open time)



### Operating Mode EXIT

The door only opens on receipt of an impulse from inside or a key switch impulse. The external activator is also disregarded when the door is open. The door behaviour is determined by the last operating mode selected – AUTOMATIC 1 or AUTOMATIC 2.



### Operating Mode OPEN

The door is opened by the drive and permanently held in the open position. The open position is determined by the last operating mode selected – AUTOMATIC 1 or AUTOMATIC 2. If the door is clearly moved in the closing direction, it will close automatically (the “Push-and-Close” function). It will open again at the next opening impulse or if the operating mode is changed to OFF and back to OPEN.

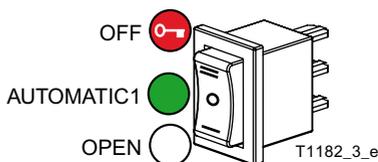
## P Additional Operating Mode (MANUAL OPERATION)

The additional operating mode is freely programmable by the installer. MANUAL OPERATION is active without programming: the door can be freely moved and opened manually. This operating mode is primarily suitable for cleaning the door leaf.

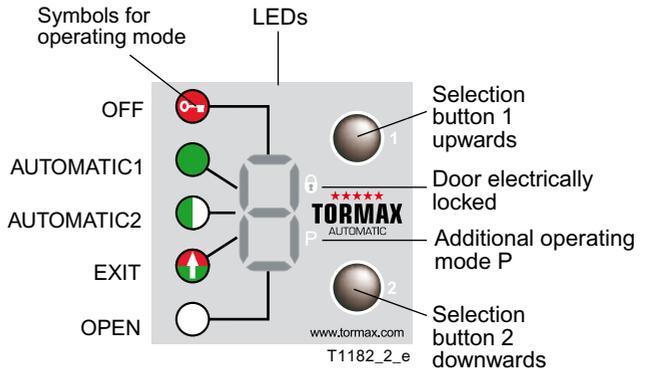
### Altering the Operating Mode

Doors fitted with drives but without an operating mode selection switch ◆ or a control panel ◆ are set to operating mode AUTOMATIC 1.

### Operating Mode Selection Switch



## Control Panel ♦



The control panel can display causes of malfunctions as well as the operating mode (see section 5)

## Control Panel Lock ♦

The control panel can be protected against mis-use by an external key switch. Any change to the settings by means of the control panel is therefore prevented.

## 3.6 Resetting the Panic Fitting ♦

- Separate the drive from the power supply (system switch, power plug) or with the operating mode switch ♦ Select operating mode OFF.
- Push the door leaves back into the initial position.

# 4 Maintenance

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- The responsibilities of maintenance personnel must be clearly defined.
- Keep hands or other parts of the body well away from moving parts.

Spare parts must meet the manufacturer's technical requirements. Only genuine TORMAX spare parts must be used.

## 4.1 Periodic Maintenance

### Maintenance Interval

The maintenance interval is determined with regard to the frequency of use. However, maintenance work must be carried out by specialist staff at least once per year.

### Requirements for Maintenance Personnel

Specialist staff are persons who possess sufficient knowledge in the field of powered doors as a result of their specialist training and experience and are sufficiently familiar with the relevant accident prevention regulations (Health and Safety Regulations), guide-lines and generally acknowledged rules of technology with the result that they are capable of assessing the safety condition of power-driven doors. Such groups of people include, for example, specialist staff of the manufacturing or supplying company and persons with appropriate experience employed by the operator.

Specialist staff must provide their assessment objectively from the standpoint of accident prevention and must not be influenced by other (e.g. economic) factors.

Repairs on electrical components must be performed by a specialist electrician who must work in accordance with the relevant regulations.



If any work is being carried out on the door, the door must be visibly isolated from the power supply, either by removing the power plug or by a system switch with a lockable OFF position.

### Scope of Maintenance Work

The maintenance work which must be carried out is listed in the *system test book*.

The findings of the inspections must be entered along with the date and the signature of the person carrying out the inspection.

## 4.2 Inspections by the System Operator

### Scope of the Inspection



The operator of an automatic door system must check all functions of the automatic door and the safety devices at regular intervals and at least every 3 months in order to ensure that malfunctions or changes in the system prejudicial to safety are recognised at an early stage.

If malfunctions should be recognised during these periodic inspections, you must arrange for these to be rectified immediately by a TORMAX dealer (see the rear side of these Operating Instructions for the address).



When conducting this inspection, always bear in mind that a switching error in the system is possible. If there is inadequate clearance available, no part of the body should be used to test the functions; a piece of wood, rubber or similar material should be used instead.

The inspection work to be undertaken by the operator requires very little time but is essential to ensure that the system is operating perfectly and safely.

The inspection work to be undertaken by the operator consists of:

### Checking the Opening Activators

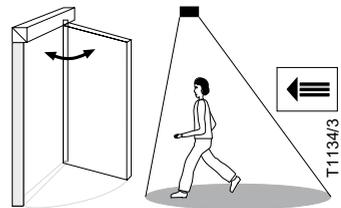
If there is an operating mode switch available:

- Set operating mode AUTOMATIC 1.

**Automatic Opening Activators (radar or infra-red motion sensors ♦, contact mats ♦ etc.)**

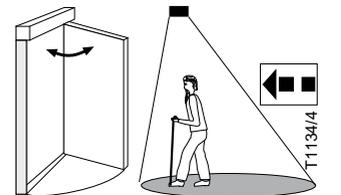
Check:

- Approach the door in the normal way:  
→ The door opens at the correct time and closes after the set hold-open time.



Check:

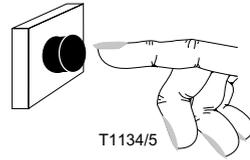
- Approach the door slowly (like older persons) with a short pause before reaching the door (approximately 5 seconds):  
→ The door opens normally even when approached slowly. The door must not close prematurely.



## Inspection of the Manual Opening Activators (Push-Buttons ◆, Key Switch ◆ etc.)

### Checks on *time-control systems*

- Operate the corresponding activator briefly:  
→ The door opens and closes after the pre-set hold-open time.
- Operate the activator for about 20 seconds:  
→ The door opens and remains open. When the activator is no longer operated, the door closes after the pre-set hold-open time.



### Checks on *step-control systems*:

- Trigger the corresponding activator briefly:  
→ The door opens (closes) and remains in the OPEN position (CLOSED position) until the activator is triggered once more.

## Inspection of the Safety Facilities

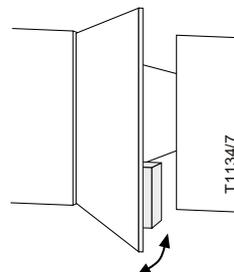
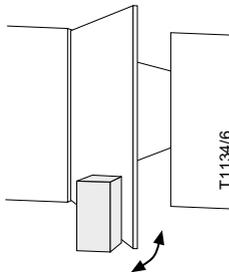
The safety devices have a higher priority than the activators; this aspect must be kept in mind and checked during the following inspection procedures.

### Electronic Reversing

(if the reversing system was switched off by the installer, this inspection procedure does not apply)

Check:

- Place an obstruction in the opening area and then in the closing area:  
→ After the door has encountered the obstruction when opening, it stands still for a short time and then closes again.  
→ After the door has encountered the obstruction when closing, it opens again, waits for the safety time and then tries to close once more.



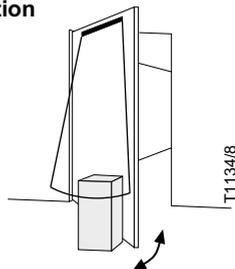


### Safety Facilities in Opening- and Closing Direction

(The safety sensor system ♦ etc.)

Checks:

- Place an obstruction in the swing area of the door:  
→ The door reverses before it encounters the obstruction.

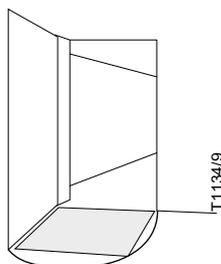


### Safety Facility for the Swing Area

(Reflective light scanner ♦, safety contact mat ♦ etc.)

Checks:

- Activate the safety device in the swing area when the door is closed:  
→ The door remains closed.
- Activate the safety device in the swing area when the door is open:  
→ The door remains open



If the door is already in motion, its movement is not interrupted by the safety devices for the swing area.

### Panic Fitting ♦

Checks:

- Separate the drive from the power supply (system switch, power plug), or by using the operating mode switch ♦ Select operating mode OFF.
- Push the door in the opposite direction to the opening direction and release the panic fitting.
- Push the door leaves back into the exit position



### Checking the System for Signs of Excessive Wear

Checks:

- Examine the surfaces of the door system visually for recognisable damage and defects.
- Listen for unusual noises when the door is moving.

# 5 Trouble Shooting

Malfunctions become evident by unusual behaviour of the door and/or as a result of an error message on the control panel. Error messages appear on the control panel as a flashing "E" followed by two figures. Some malfunctions can be quickly rectified by briefly switching off the power supply to the door drive (remember that some models have a battery module). If the malfunction cannot be rectified or if it re-occurs after a short time, you should arrange for it to be rectified by a fitter from your TORMAX dealer. In this case, note the error number and pass the information to the specialist.

If the door moves very quickly and in an uncontrolled manner, the system **MUST** be deactivated as described in section 3.4 until the malfunction has been rectified.

Door Behaviour	Action
<ul style="list-style-type: none"><li>In spite of the safety sensor the door collides with people.</li></ul>	Further operation in all operating modes except <b>OFF</b> or <b>OPEN</b> is dangerous and must therefore not be permitted until the malfunction has been rectified by the TORMAX dealer's fitter.
<ul style="list-style-type: none"><li>The door will no longer open automatically.</li></ul>	If there is no interruption to the power supply: a) Check the position of the operating mode selection switch b) Remove any objects from the area scanned by the safety sensor c) It is possible that the overheating protection system has been activated. Wait for 15 minutes until the temperature has dropped.
<ul style="list-style-type: none"><li>The door remains open</li></ul>	If there is no interruption to the power supply: a) Check the position of the operating mode selection switch b) Remove any objects from the area scanned by the safety sensor or the opening activator c) If your door system is programmed to open in the event of a power failure: it is possible that the overheating protection system has been activated. Wait for 15 minutes until the temperature has dropped.

# 6 Additional Information

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## 6.1 Technical Data

Mains connection:	1 x 230 V AC / 1 x 115 V AC
Frequency:	50 / 60 Hz
Power consumption:	4 ... 250 W
Protective system – drive:	IP 67 (7 days, water up to the upper edge of the case)
Protective sys. – control box:	IP 55
Temperature range:	-20 °C to +50 °C
Drive marking:	CE
Equivalent continuous sound pressure level:	< 70 dB(A)
Power supply to sensor	24 VDC / 0,8 A
Power supply to lock:	12/24 VDC / 0,6 A
Application category:	1 3 1 X 123 X 01234 4 (DIN 18650-1: 2005-12)

## 6.2 Warranty Claims

Malicious or wilful damage to and contamination of system components as well as modifications to the drive and control system by third parties renders all warranty claims null and void.

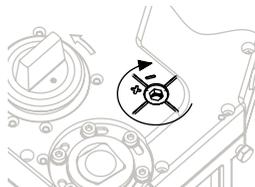
## 6.3 Optional Extras

The following are some of the optional extras which are available: electro-magnetic lock, key switch, security features and a range of activators. Please ask your TORMAX dealer for more information.

## 6.4 Disposal

This system must be properly dismantled at the end of its working life and its disposal carried out in accordance with national regulations. We recommend that you contact a specialist disposal company.

Before opening the case, remove the tension on the spring right up to the stop, as in the drawing.



Contents subject to technical changes!



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