

**Operating Instructions**  
for automatic swing doors  
**SWINGDOOR Smart Drive 1101**



# Contents

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# 1 Introduction

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## Addressee/Status

These instructions are directed at the system operator and user of an automatic TORMAX door system and it is presumed that the system was installed and tested by professional persons, i.e. that it is ready for operation.

## Applicability

This document is applicable for swing doors with TORMAX automatic door operator of type:

**SWINGDOOR Smart Drive 1101  
TTX II (USA)**

## Explanation of Symbols

In these instructions, we have designated all positions concerning your safety with this symbol.



This symbol warns of electrical voltage.



Text passages with a background in grey mark all positions that are relevant for a sound functioning of the system. Non-adherence can cause material damage.



Functions that are marked with this symbol correspond to the basic adjustments. However, the installation fitter can reprogram them.



This symbol denotes optional components which do not form part of all systems.

## Symbols for Operating Modes



Operating mode OFF



Operating mode AUTO



Operating mode OPEN

## Languages

These instructions are available in various languages. Please ask your TORMAX dealer.

## Applicable Documents

Please refer also to the System Test Book which contains a list of checks that need to be performed during the periodic maintenance (see also section 4.1). The System Test Book is located at the corresponding door system.

System Test Book International:

T-895 e

# 2 Safety

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## 2.1 General Safety and Accident Prevention Directions



### General Safety Instruction

Before beginning installation or start-up, read and follow these information that is being described on this page. Damage to the unit and personal injury may result if these instructions were not carefully followed.

*These products are Underwriters Laboratories, Inc. (UL) listed and cUL certified for the Canadian marketplace, and therefore comply with the requirements of the National Electrical Code (NEC) and the Canadian Electrical Code (CEC). Installations intended to meet UL and cUL requirements must be followed as described in the instruction provided herein. These are minimum standard requirements. Where local codes exceed these requirements, they must be followed as well.*

### Preventing General Hazards and Possible Damage to This Equipment

- Keep fingers away from all moving parts.
- Verify that the power selection switch is set to the correct voltage before start-up.
- The power supply cable (flexible cord) should be entered via the plastic end side knockout that is close to the input power supply terminals. It should not be routed through doorways, window openings, walls, ceilings, floors, etc. The power supply cable (flexible cord) should not be attached or otherwise secured to the building structure. It should not also be concealed behind walls, etc.
- Never allow the power supply cable (flexible cord) to become entrapped in moving parts of the operator, door, or system.

### Warnings of Dangerous Electrical Voltages or Current

- Be sure the electrical power is disconnected and locked-out when working on the operator unit.
- Install the electrical cables and power only after the mechanical installation to the unit is done.
- Turn on the power to the operator unit only after all internal cables are connected. Do not connect cables while the unit is powered.
- Always use appropriate tools for installation and repair.

Please read the operating instructions — especially the following safety notes — carefully prior to commissioning of the door system and adhere to them!



Observe specially marked notes in these instructions in any case (refer to chapter 1 for an explanation of symbols)!

### **Use for Intended Purpose**

The TORMAX operator has been designed and constructed according to the current state of technology and the recognized safety related regulations. It is intended exclusively for the deployment in conjunction with automatic interior and exterior doors (without wind loads) for use by people e.g. in hospitals, homes for the elderly, shopping centres, office buildings and large-scale enterprises. Operators conforming to protective class IP 22 may only be installed at the inside of buildings if no other protective measures are provided.

Any other use, or any use exceeding this aim, is determined to be not for its intended purpose and may cause personal injuries to the user or a third party. The manufacturer will not be liable for damages resulting from such uses; the risk will be borne entirely by the system operator of the door system.

### **Basic Safety Measures – Appropriate Behavior**



Use system only in a technically sound condition. Ensure that faults which could diminish safety are eliminated immediately by professionals.

### **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 Organizational 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 faults occur on safety facilities (e.g. sensor system), these must not be disabled for further use of the door.

### Servicing TORMAX Door Systems

Any person operating, checking and maintaining doors must be in possession of the necessary instructions (including operating instructions).

Personnel entrusted with work on the system must have read and understood the operating instructions.

Mechanical and electrical work on the door system and the control system may only be performed by TORMAX professionals or by other professionals after having consulted TORMAX professionals.

All other persons are prohibited from performing any repair work or changes to the system.

### Designations

Designations on doors and electrical devices must be well readable, intelligible and of high durability.

Escape routes must be designated if this information is required for the safety of people.

## 2.3 Safety Facilities

In accordance with the results of a safety analysis, TORMAX allows for the connection of safety facilities for the protection of people and equipment on the control system of this operator model. These facilities must be designed according to the current state of technology and must comply with the guiding rules for machines 98/37/EWG, the standards of CEN (European Committee for Standardization) and CENELEC (European Committee for Standardization of Electrotechnics) as well as the corresponding national regulations.

### Electronic Reversing



An electronic circuit monitors the door motion during opening and closing actions. If the door hits an obstacle during opening, it stops for a short time and closes afterwards. If the door hits an obstacle during closing, it re-opens, waits for the safety time to expire and tries to close again.

Reversing can be deactivated by the fitter.

## External Safety Facilities

### **Safety Facility in Opening Direction ♦ (Safety Sensorstrip ♦ etc.)**

The safety device riding along with the door leaf recognizes people or obstacles in the swing side of the leaf. If the safety device is activated, the opening motion is immediately cancelled and the door closes.

### **Safety Facility in Closing Direction ♦ (Safety Sensorstrip ♦ etc.)**

The safety device riding along with the door leaf recognizes people or obstacles in the approach side of the leaf. If the safety device is activated the door re-opens, waits for the safety time to expire and closes again.

### **Safety Facility for the Swing Area ♦ (Safety Reflective Light Scanner ♦, Safety Contact Mat ♦ etc.)**

The safety device recognizes people or obstacles in the swing area of the leaf.

If the safety device is activated, the start of a door movement is prevented.

If the door is already in motion when the safety facility for the swing area responds, the opening or closing action terminates.

# 3 Operation

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## 3.1 Commissioning

### **Switching On**

Systems without operating mode switch ♦:

- Switch-on mains supply (mains plug and/or main system switch).

Systems with operating mode switch ♦:

- Switch-on mains supply (mains plug and/or main system switch).
- Select desired operating mode (OFF, AUTO, OPEN) with operating mode switch

### **Re-Commissioning**

If the door has not been operated for a longer period, it must be checked prior to re-commissioning according to section 4.2 and repaired if necessary so that the safety of people is ensured at all times.

## 3.2 Normal Operation – Operating Modes

The TORMAX door operator ensures the automatic opening and closing of the door. The door opens electro-mechanically when an impulse is received and closes with controlled spring force. By selecting an appropriate operating mode on the operating mode switch ◆, the behavior of the door can be influenced.

### Activation

The door is automatically activated by opening activators, such as:

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

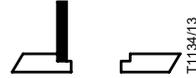
or manually:

- with «Push-and-Go», push-button ◆, key switch ◆, manual switch ◆ etc.

### Operating Modes

If there is no operating mode switch the standard operating mode AUTO is activated by default.

With operating mode switch ◆ installed you may choose one of the following operating modes: OFF, AUTO, OPEN.



### Standard Operating Mode AUTO

#### Function

During commissioning, one of the following control functions was enabled by the installation fitter:



#### “Push-and-Go”

When the door is moved manually, the response is the same as for an opening command: it opens automatically, waits until the hold-open time has elapsed and closes afterwards again.

#### “Push-and-Close”

When the open door (operating mode OPEN, during hold-open time, step control) is moved manually and considerably in closing direction, it will close automatically.



#### Time Control

If the door receives an opening command from an activator, it opens and waits for the hold-open time to elapse before closing again.

#### Step Control ◆

If the door receives an opening command from a manual activator, it opens and remains open. It re-closes immediately on a second impulse.

### **Systems with Door Lock ♦**

If the door receives a valid opening command from an activator (sensors ♦, key switch ♦), it unlocks and opens. To open the door with "Push-and-Go" the lock must be released by means of the door handle.



### **Operating Mode OFF**

Except for the key switch, all activators and the function "Push-and-Go" are inactive. The door behaves like a door with an ordinary door closer. Switching to operating mode OFF while the door is opening or open, causes closing of the door and canceling of the valid hold-open time.

If the door is opened by the key-switch ♦ it respects the programmed hold-open time for the key-switch ♦.

### **Double Swing Doors ♦**

In the case of double swing doors, OFF mode can be switched to individually on overlapping leaves..

### **Systems with electrical Door Lock ♦**

In the closed position the door is always locked. If the door receives an opening command from the key switch ♦, it unlocks, opens and closes again.

### **Systems with mechanical Door Lock ♦**

Before locking the door mechanically, operating mode OFF must be activated.



### **Operating Mode OPEN**

The operator opens the door motor-driven and keeps it open, driven by motor force. If the OPEN position is changed by extraneous cause (Push-and-Close), the door closes.

Receiving the next opening impulse, or switching to operating mode OFF and back to OPEN, it will re-open again.

*The operating mode OPEN may remain active for several hours. However, if the door remains for a longer period in the OPEN position, we recommend to choose operating mode OFF and fix the door mechanically.*

### **Safety Facilities**

The door systems may only be operated when all safety-relevant facilities are installed and functional!

## Shutdown in Case of Fault (trouble shooting see chapter 5)

Doors are to be taken out of operation when faults or other deficiencies occur that may diminish the safety of people. Please ensure that faults and deficiencies are eliminated in due course!



- Doors may only be released for normal use when the fault is eliminated (repaired) or the danger is removed (disconnect operator from mains).



- It must be ensured at all times that doors serving as emergency exits can be used for escape

Components and marks that no longer guarantee the required safety due to wear or tear are to be replaced or repaired by a qualified TORMAX dealer.

## 3.3 Duty on Power Failure

On power failure, the door operator behaves like an ordinary door closer.

### Emergency Opening / Emergency Closing

The automatic door can be opened manually without any readjustment. The controlled closing motion is performed by means of the built-in closing spring.

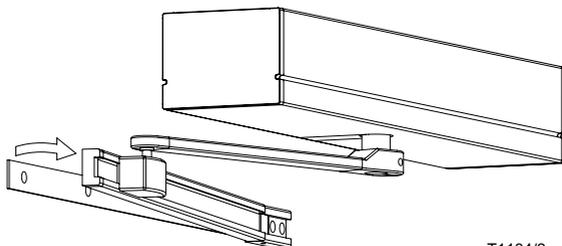
## 3.4 Panic fitting ◆



### Reset

If a panic fitting has been disconnected, proceed as follows:

- Choose operating mode OFF or disconnect the operator from mains (installation switch, mains plug).
- Reset the panic fittings cautiously as per drawing below.
- Choose operating mode AUTO or switch on operator.



# 4 Maintenance

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- The responsibilities of maintenance personnel must be clearly defined.
- Keep hands and other body parts away from moving devices.

Spare parts must comply with the technical requirements of the manufacturer. Use exclusively original spare parts.

## 4.1 Periodic Maintenance

### Maintenance Interval

The maintenance interval is determined under consideration of the frequency of use of the system. However, checking and maintenance must be performed at least once a year by a professional.

### Requirements Concerning Maintenance Personnel

Professionals are persons who have adequate knowledge in the discipline of power operated doors based on their vocational training and experience and who are acquainted with the applicable accident prevention regulations, guidelines and generally recognized rules of that technology to such an extent that they can appraise the safe working condition of power operated doors. These persons include for example professionals of the manufacturing or supplying company and experienced professionals of the system operator.

Professionals have to submit their expertise objectively from the point of view of accident prevention and not influenced by other, e.g. financial, perspectives.

Maintenance work on electrical parts and cables must be performed by an electrical fitter who must work in accordance with the relevant regulations.



For all work, a clear separation must be created between mains supply and drive system; either by unplugging the mains connector or through securing the main system switch in the OFF position.

### Extent of Maintenance Work

The extent of maintenance work is shown in the *system test book*.

The inspection results are to be entered into the system test book by the professional together with date and signature.

## 4.2 Inspections by the System Operator

### Extent of Inspection



The inspection must be performed periodically, but not less than once every 3 months. The system operator of an automatic door must check the proper functioning of the automatic door system and of the safety facilities as well periodically, but not less than once every 3 months. Thus, an early recognition of functional faults, or of mutations to the system that diminish safety, is ensured.

If deficiencies are found during the periodic checks, ensure that these are repaired immediately by an authorized TORMAX dealer (address see at back of these instructions).

When performing these checks, please consider also the possibility of incorrect actions by the system! Body parts must not be used for functional tests if insufficient space is available; suitable objects made from wood, rubber or similar material should be used instead.

The maintenance work to be performed by the system operator requires only a minimum of time but is essential for a safe and faultless functioning of the system.

This work includes:

### Inspection of the Opening Activators

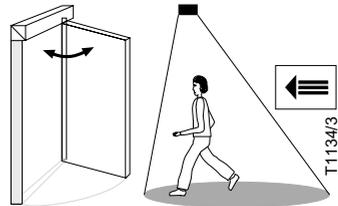
If a operating mode switch is installed:

- Select operating mode AUTO.

### Automatic Opening Activators (radar systems, infrared sensors ♦, contact mats ♦ etc.)

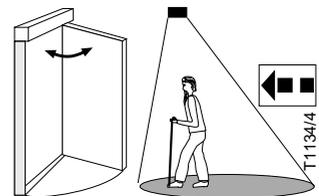
Check:

- Walk through the door in an ordinary way.  
→ The door should open in time and close again after the set hold-open time.



Check:

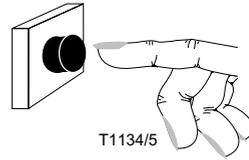
- Approach and pass through the door slowly (older persons) with a short pause (approx. 5 sec.) before arriving at the door.  
→ The door should open normally also on a slow approach. The door should not close too early.



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

### Checks on *time-control systems*

- Operate the corresponding activator briefly:  
→ The door should open and close again after the set hold-open time.
- Operate the activator for approx. 20 seconds:  
→ The door should open and remain open. When the maintained impulse is no longer active, the door should close after the hold-open time has elapsed.



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

- Operate the corresponding activator:  
→ The door should open (close) and remain in the open position (closed position) until the activator is reactivated.

## Inspection of the Safety Facilities

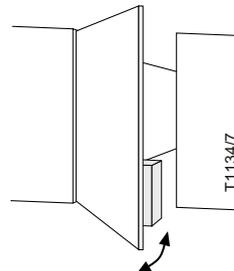
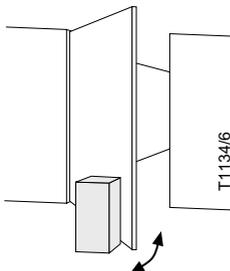
Please keep in mind that the safety facilities have a higher priority than the activators. This aspect is to be considered and tested during the following checks.

### Electronic Reversing

(if reversing has been deactivated by the fitter, this check can be omitted)

#### Checks:

- Place an obstacle first within the opening and then within the closing range of the door:  
→ When the door hits the obstacle during the opening motion it should stop for a short period and close again.  
→ When the door hits the obstacle during the closing motion, the door reopens, waits for the safety time to elapse and tries to close again.



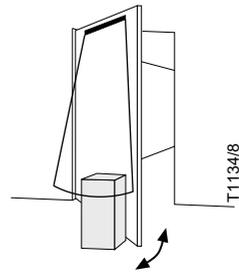


### Safety Facilities in Opening- and Closing Direction

(safety sensor strip ♦ etc.)

Checks:

- Place an obstacle in the swing area of the door:  
→ The door reverses at the obstacle.

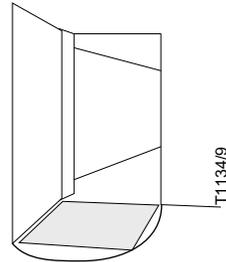


### Safety Facility for the Swing Area

(reflective light scanner ♦, safety mat ♦ etc.)

Checks:

- Activate safety mat with closed door:  
→ The door should remain closed.
- Activate safety mat with open door:  
→ The door should remain open



Commenced movements will not be interrupted by the safety facilities for the swing area.

### Panic Fitting ♦

Checks:

- Separate operator from mains supply (main system switch, mains plug), or select operating mode OFF with the mode selector ♦.
- Trigger panic fitting. (reset as per section 3.4).

### Inspection of the Door for Traces of Extensive Wear

Checks:



- Check the door system visually from the outside for recognizable damage and deficiencies.
- Check whether unusual noises can be heard during the motional sequence.

# 5 Trouble-Shooting

For fault analysis and fault removal proceed according to the following fault tables.

Door behaviour	Remedial action
<p>Door hits people despite the installed safety sensors</p>	<p>Ongoing operation in the operating mode <b>AUTO</b> is dangerous!</p> <p>→ Call a fitter through the TORMAX dealer. Operate the system as follows until the fitter arrives:</p> <ul style="list-style-type: none"> <li>a) Operating mode <b>OFF</b>: The door can be pushed open by hand and closes thereafter by spring force. This ordinary door closer function is permissible only if the associated risk* is tolerable.</li> <li>b) Operating mode <b>OPEN</b>: The door opens itself and remains in OPEN position.</li> <li>c) Ordinary door closer function without power supply: The door can be pushed open by hand and closed thereafter by spring force. This ordinary door closer function is permissible only if the associated risk* is tolerable. It is usually more dangerous than the operating mode <b>OFF</b> due to the higher closing speed.</li> <li>d) Manual operation of the door with switched off power supply and disconnected linkage.</li> </ul>
<p>Door does not open automatically and closes with the usual closing speed for operating mode <b>AUTO</b></p>	<p>→ Check the position of mode selector and remove any objects in the range of the safety facility in opening direction or the swing area.</p> <p>→ Wait for 15 minutes, maybe the thermal protection of the motor or of the transformer was triggered.</p> <p>If the problem cannot be eliminated that way:</p> <p>→ Call a fitter through the TORMAX dealer. Operate the system as follows until the fitter arrives:</p> <ul style="list-style-type: none"> <li>a) Operating mode <b>AUTO</b>: The door can be pushed open by hand and closes thereafter by spring force. This ordinary door closer function is permissible only if the associated risk* is tolerable.</li> <li>b) Manual operation of the door with switched off power supply and disconnected linkage.</li> </ul>

\* Injury to people due to them being jammed between door and doorframe or because they are hit by the door when it closes with spring force.

Door behaviour	Remedial action
<p>Door doesn't open automatically and closes in a controlled manner with the usual closing speed for operators that are disconnected from mains supply.</p>	<p>If there is no power failure:  → Call a fitter through the TORMAX dealer. Operate the system as follows until the fitter arrives:</p> <ul style="list-style-type: none"> <li>a) Ordinary door closer function on switched off mains supply: The door can be pushed open by hand and closes thereafter by spring force. This ordinary door closer function is permissible only if the associated risk* is tolerable.</li> <li>b) Manual operation of the door with switched off power supply and disconnected linkage.</li> </ul>
<p>The door closes uncontrolled with very high closing speed</p>	<p>Ongoing operation with the operator is dangerous!  → . Call a fitter through the TORMAX dealer. The only possible operating mode until the fitter arrives is the following:</p> <ul style="list-style-type: none"> <li>a) Manual operation of the door with switched off power supply and disconnected linkage.</li> </ul>
<p>Door remains open</p>	<p>→ Check the position of the operating mode switch and remove any object in the range of the opening activator and the safety facility in closing direction or the swing area.  → Check the position of the key switch</p> <p>If the problem cannot be eliminated that way:  → Call a fitter through the TORMAX dealer. Operate the system as follows until the fitter arrives:</p> <ul style="list-style-type: none"> <li>a) Operating mode <b>OPEN</b>: Door remains in OPEN position.</li> <li>b) Ordinary door closer function on switched off mains supply: The door can be pushed open by hand and closes afterwards with spring force. This ordinary door closer function is permissible only if the associated risk* is tolerable.</li> <li>c) Manual operation of the door with switched off power supply and disconnected linkage.</li> </ul>

\* Injury to people due to them being jammed between door and doorframe or because they are hit by the door when it closes with spring force.

The linkage may be unhooked only by an instructed person!

# 6 Additional Notes

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## 6.1 Technical Data

Mains supply:	1 x 230 V AC / 1 x 115 V AC
Frequency:	50/60 Hz
Protective class:	IP 22
Power consumption:	3–120 Watt
Ambient temperature range:	–15 °C bis +50 °C
Designation of drive:	CE
Equivalent continuous sound level:	≤ 70 dB (A)
Sensor + lock supply:	24 VDC/0.75 A
Classification according to (prEN 12650-1) 2002:	1 2 12 2 0 1 01234 0 (DIN V 18650: 2003)

## 6.2 Warranty

Deliberate or malicious damaging of system components and staining of system parts, as well as alterations to the drive or control system by a third party, will result in the loss of all warranty!

## 6.3 Options

Among others, the following options are available: Electromagnetic lock, key switch, safety facilities, various activators and sensors – please ask your TORMAX dealer.

## 6.4 Disposal

At the end of its useful lifetime, the system is to be disposed of according to the relevant national regulations. We recommend you to contact a company specializing in waste disposal.



While dismantling the drive unit watch the pretensioned spring!

Contents subject to technical changes!



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