



Operating Instructions

for Automatic Swing Doors

iMotion® 1301 Swing Door Drive

iMotion® 1401 Swing Door Drive

Content

1	Regarding these Instructions	3
2	Safety	4
2.1	Preconditions for the Operation of the System	4
2.2	Permissible Use	4
2.3	Taking the System Out of Service in Case of Fault	4
3	Functions of the System	5
3.1	Operating Modes	5
3.2	Automatic Door Operation with Sensors	5
3.3	Semi-automatic Operation with “Push-and-Go”	5
3.4	Traffic Control	5
3.5	Automatic System Monitoring	5
3.6	Electromechanical Lock ◆	6
3.7	Operation on Power Failure	6
4	Commissioning	6
5	Operation	6
5.1	Operation Through TORMAX User Interface	7
5.2	Operation through 3-Position Switch	7
5.3	Operation on Power Failure	8
5.4	Resetting the Panic Fitting ◆	8
6	Operating Modes	8
7	Maintenance	9
7.1	Cleaning and Maintenance	9
7.2	Checks by the System Operator	10
7.3	Annual Maintenance and Inspection	11
8	Trouble Shooting	12
9	Additional Notes	14
9.1	Technical Data	14
9.2	Warranty Claims	14
9.3	Optional Extras	14
9.4	Disposal	14

First edition: 10.08

We print on environment-friendly paper bleached without chlorine.

The companies Landert Motoren AG and Landert GmbH are certified according to ISO 9001.

1 Regarding these Instructions

Addressee/Status

The person responsible for operation and maintenance of the system is referred to as "system operator". The system operator is responsible for the operation and maintenance of the system.

Area of Application

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

iMotion® 1301 Swing Door Drive

iMotion® 1401 Swing Door Drive



Explanation of Symbols

In these instructions we have marked all positions which concern your safety with this symbol.



This symbol warns of electrical voltage.

Text passages in grey background must be absolutely observed for sound operation of the system! Disregard may cause material damage.



Operating functions that are marked by the accompanying symbol correspond to the basic settings; however, the fitter can reprogram them.



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

Symbols for Operating Modes



Operating mode OFF



Operating mode EXIT



Operating mode AUTOMATIC 1



Operating mode OPEN



Operating mode AUTOMATIC 2

P

Operating mode P Manual Operation

Languages

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

Applicable Documents

In the system test manual, checks are listed that must be performed on periodic examination of the system (see also section 7.3). The location of the test manual is at the respective door system.

System test book: T-879 e

2 Safety

2.1 Preconditions for the Operation of the System

The door system was planned, installed and checked by qualified professionals with regard to performance and safety before it was handed over to the system operator.

The system operator was instructed by the installation company concerning operation and maintenance of the system as well as the dangers associated with system operation.



Prior to commissioning of the door, these operating instructions – in particular the safety notes – are to be perused and they must be observed!

In addition to the operating instructions, the generally applicable legal and the safety-relevant regulations and rules of industrial medicine for accident prevention and for environmental protection in the respective country, in which the system is operated, are also applicable.

The responsibility for the instruction of the service personnel, the permissible use and the adherence to the maintenance regulations lies with the system operator. Get acquainted with the operation of the system by studying the operating instructions.

Use the system only in a technically sound condition. Safety devices may not be removed or made ineffective. Make sure that possible fault situations are eliminated immediately by qualified professionals.

For a most secure and reliable operation of the automatic door system, it must be serviced at least annually and submitted to a safety-relevant examination by a qualified professional trained for this kind of work. If this work is not carried out by the designated person, the manufacturer will reject any product liability and warranty.

2.2 Permissible Use

The automatic door system TORMAX iMotion 1301 and iMotion 1401 Swing Door Drive are built according to the current state of technology as well as the recognized safety-relevant rules.

The swing door system is intended exclusively for the deployment in dry rooms and/or, for outer doors, at the inside of a building in the pedestrian passageway. The operator can only be used at the exterior of a building if additional protective measures are taken and under observance of the acceptable environmental conditions.

Any other use, or any use exceeding this aim, is deemed as not used in accordance with its intended purpose. The manufacturer will not be liable for damages resulting from such applications. The risk will be borne entirely by the operator of the door system, i.e. the system operator.

Arbitrary changes to the system will exempt the manufacturer from any liability for damage resulting from this.

2.3 Taking the System Out of Service in Case of Fault

The automatic door system must be taken out of service as soon as faults or deficiencies occur that may impair the safety of people.

- Switch off the mains supply to the system
- Select operating mode “P” if system operation will be continued by means of the internal battery backup system.

For information relating to fault indication and trouble shooting see chapter 8.

3 Functions of the System

3.1 Operating Modes

The automatic door system can be operated through the TORMAX user interface ♦ with 6 operating modes and status display or optionally through a 3-position switch ♦ with 3 operating modes.

3.2 Automatic Door Operation with Sensors

In automatic operation (operating mode AUTOMATIC 1), the door opens automatically through sensors when a person approaches. In exceptional cases, it opens through deliberately activated switching devices such as push buttons or card readers for controlled access.

A key switch usually permits access to the door from the outside also in operating mode EXIT or OFF. The door unlocks, opens and closes again as soon as no further sensors are activated any more after expiry of a separately adjusted hold-open time.

The sensors for the door opening and the maintained opening of the door are arranged and adjusted in such a way that the door opens promptly and remains open as long as a person is within the operating range of the door leaf. The door can close nevertheless but only after an attendance time of approx. > 1 minute.



The reduced closing speed, which is adjusted by the fitter and adapted to the door weight, in combination with a force of < 150 N, prevents an excessive impact on a person by the moving leaf. Additionally, the obstacle is detected by the control system and an automatic reversal of the door is initiated.

Sensors for safeguarding the door leaf can be made available depending upon the surrounding conditions (e.g. column near the operating range) and design of the system (safety clearances). When a person moves into the danger area, the door leaf stops or slows down to a very low speed depending upon the adjustments performed by the fitter.

3.3 Semi-automatic Operation with “Push-and-Go”

Instead of having sensors the door can be manually pushed open. After being detected by the control system, the door opens automatically and closes again.

3.4 Traffic Control

The passageway can optionally be blocked in one direction (operating mode EXIT) or be completely closed (operating mode OFF).

3.5 Automatic System Monitoring

The control system monitors the safety sensors by cyclic active testing. Further, the control system performs continuously internal system tests. On failure of a safety-relevant component, the system changes automatically into a safe state. Thereby, the fault number is displayed on the user interface.

Please refer to chapter 8 “Trouble Shooting” for further information.

3.6 Electromechanical Lock

The system can be locked in the closed position through an optional electromechanical lock. It is unlocked in operating mode P, manual operation.

3.7 Operation on Power Failure

The following functions are possible according to specifications:

- Immediate closing through a mechanical energy storage.
- Immediate opening activated through a mechanical energy storage.
- Continued operation of the system through a battery unit during a determined time.
- Unlocking and opening of the door from the outside through the key switch and through the battery unit.
- Manual operation by pressing the door handle (unlocking) and manual opening of the door.
→ The door closes again controlled by the mechanical energy storage.

4 Commissioning

Before switching on mains supply:

- Unlock the optional mechanical locking mechanisms.
 - Make sure that the operating range of the door leaf is free of items such as umbrella stands or trolleys.
 - Switch on mains voltage and select the operating mode, e.g. AUTOMATIC 1.
- The first motion after switching on mains supply for the first time takes place slowly in closing direction with indication of H62. Thereby, the control system checks the end position of the door leaf. In this respect care should be taken to ensure that the door can close fully.
- The door is now ready for use.

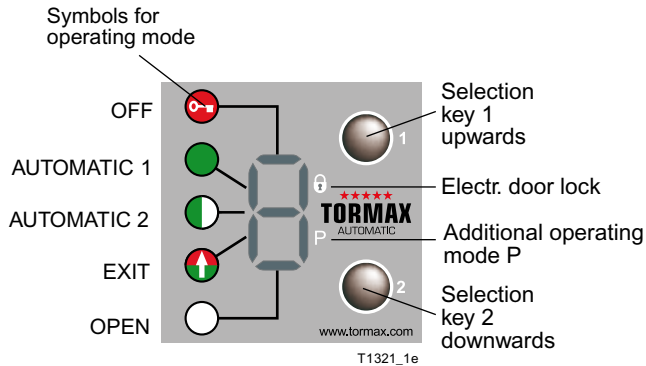
5 Operation

The following operating devices are available for the operation of the system depending upon outfit.

- TORMAX user interface ◆
- Lock for user interface ◆
- TORMAX 3-position switch ◆
- Key switch ◆ or card readers outside ◆
- Door opener/knob/key for unlocking the electrical lock ◆

Systems without user interface or 3-position switch are either provided with a fixed operating mode, e.g. AUTOMATIC 1, or are centrally controlled by a time clock (e.g. OFF / AUTOMATIC 1). Push buttons, elbow switches etc. can be installed in place of, or in addition to the sensors.

5.1 Operation Through TORMAX User Interface



Selection of the Operating Modes

- Unlock optional lock for user interface.
- Press selection key 1 or 2 briefly. The corresponding operating mode is displayed.

Indication of Faults

E.g. H91 or E42 → For the significance of the indication see chapter 8.

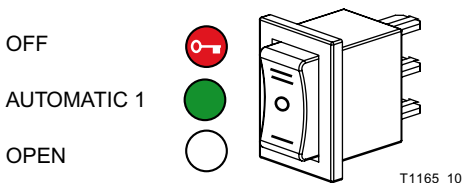
- Reset the indication by briefly pressing selection key 2

System Reset

- Press selection key 2 for at least 5 seconds.

The software is restarted. Subsequently, the control system performs a calibration run in closing direction and searches again for the end positions. The display shows H62.

5.2 Operation through 3-Position Switch



Selection of the Operating Mode

The operating mode can be set directly.

System reset

- by changing the operating mode (in case of malfunction).
or
- by separating the system from mains supply for at least 5 seconds.

5.3 Operation on Power Failure

Opening Through Key Switch with Battery Unit ◆

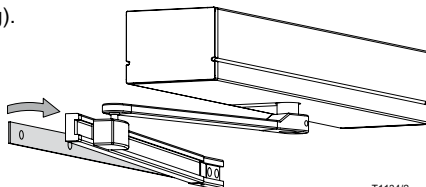
- Actuate the key switch for at least 3 sec. and turn it back again.
 - The battery is switched on through the wake-up function.
 - The door is unlocked and opened.
 - The battery switches off again.

5.4 Resetting the Panic Fitting ◆

- Choose operating mode OFF (operating mode switch ◆, control panel ◆) or disconnect the operator from mains (installation switch, mains plug).

iMotion 1301

- Reset the panic fittings cautiously (see drawing).



iMotion 1401

- Push the door leaf back into the initial position.
- Choose operating mode AUTOMATIC 1 or switch on operator.

6 Operating Modes



Operating Mode OFF

The activators inside and outside are not observed. The door is pushed close mechanically and is locked by the electromechanical door lock ◆. Access is only possible through the key switch or through manually unlocking the door.



After having been selected, the operating mode OFF becomes active subject to a time lag. The time lag is displayed on the control panel by the flashing display of the operating mode OFF. During this time, which can be adjusted by the installer, the door can still be used as set per the last operating mode.



Operating Mode AUTOMATIC 1

The operating mode AUTOMATIC 1 is commonly used for operation during the day. The door opens automatically through the inside and outside sensors.

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.

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.

The door lock can be permanently unlocked in this operating mode in case of need.



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).



The door lock can be permanently unlocked in this operating mode in case of need.



Operating Mode EXIT

The operating mode EXIT is commonly used for operation before closing time. The door opens automatically only through the sensor inside. During the door opening, the sensor outside is observed likewise for safety reasons. The opening width is determined by the preceding selection of the operating mode AUTOMATIC 1 or AUTOMATIC 2. Additionally the door can be locked automatically by the door lock ◆.



The door lock can be permanently unlocked in this operating mode in case of need.



Operating Mode OPEN

The door is opened by the drive and permanently held in the open position. The opening width is determined by the preceding selection of the operating mode AUTOMATIC 1 or AUTOMATIC 2. The door is opened by the drive and permanently held in the open position.

P Operating Mode P Manual Operation



The door leaf is freely movable. This operating mode can be used for the cleaning of the door leaf or for a temporary shut down of the system.

A system reset takes place after quitting this operating mode.



The door lock can be permanently unlocked in this operating mode in case of need.

7 Maintenance

The system was inspected and accepted by a qualified professional before initial operation. The manufacturer recommends making arrangements for a service contract so that the value of the system is maintained for as long as possible and the system operates reliably and safely in the long term.

The following maintenance work is to be carried out.

- Regular cleaning of external system parts and floor guides.
- Checks by the system operator at least every 3 months.
- Annual maintenance and inspection of the system by qualified professionals.

Genuine spare parts are to be used exclusively.

7.1 Cleaning and Maintenance

- In operating mode “P”, clean the door leaf, casing parts and user interface with a damp cloth using a commercial cleaning agent.

- Check the door system, linkage and operating devices outside visually for recognisable damages and deficiencies.
- Check whether unusual noises can be heard during the motional sequence.

7.2 Checks by the System Operator

Extent of the Checks



The system operator of an automatic door system must check in periodic time intervals, however at least every 3 months, the performance of the automatic door and the safety facilities. Thus, functional disturbances or safety-endangering changes to the system can be detected early.

If faults are determined during the periodic checks, arrangements for getting these repaired by a TORMAX dealer (address see back page of these instructions) must be made immediately.



When performing these checks, consider always the possibility of a malfunction of the system! If sufficient free space is not available, do not use any parts of your body for operational tests; use a suitable object as a substitute (e.g. polystyrene or cardboard).

The checks to be carried out by the system operator require only a very low expenditure of time but are essential for a safe and sound operation of the system.

The checks by the system operator include:

Checking the Sensors

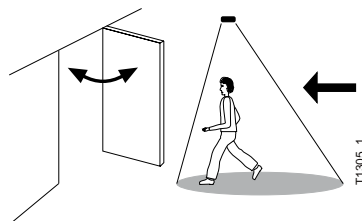
- Set operating mode to AUTOMATIC 1.

Automatic Motion Detector

The motion detector triggers the automatic opening of the door. The sensor must be effective over the total door width. The general flow of traffic and direction of traffic for the given situation are to be considered during these checks.

Checks:

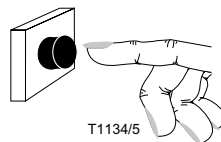
- Walk through the door in a normal speed.
→ The door starts to open approx. 1.5 – 2 m before it is reached. Immediately before reaching the door, it must already be open to at least 80 % of the opening width.
- Perform this check at the entrance and exit sides of the door.



Manual Opening Activators (Push-Buttons ♦, Key Switch ♦ etc.)

Checks:

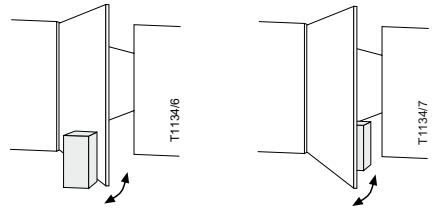
- Operate the corresponding activator briefly:
→ The door opens and closes after the pre-set hold-open time.



Safety Facilities in opening and closing direction (Safety sensor strip ♦ etc.)

Check:

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

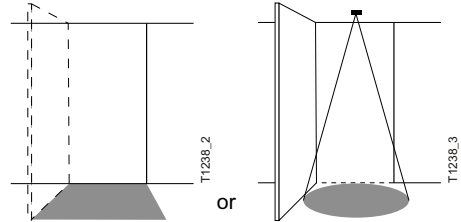


Safety Facility for the Swing Area

(Reflective light scanner ♦, safety 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 (installation switch, power plug), or select operating mode OFF by using the operating mode switch ♦.
- Push the door in the opposite direction to the opening direction and release the panic fitting.
- Push the door leaf back into the initial position (see section 5.4).

Electrical Emergency Operation ♦

Checks:

- Simulate a power failure (pull the power plug or switch off the main system switch):
→ Battery test. Further operation in AUTOMAT 1 operating mode or wake up in OFF operating mode via the key switch outside
- Restore mains supply.

7.3 Annual Maintenance and Inspection

Service Interval

Service interval is defined under consideration of the frequency of use. However, maintenance and inspection must take place at least once annually by a qualified professional trained for that purpose.

Requirements for Maintenance Staff

Qualified 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.

Qualified professionals have to submit their expertise objectively from the point of view of accident prevention and must not be influenced by other requirements, e.g. financial demands.

Maintenance work on electrical parts must be performed by an electrical fitter.

Extent of Maintenance Work

The extent of maintenance work is set out by the manufacturer. The inspection may only be carried out by a person trained for that purpose as specified by the manufacturer.

Test Book

The findings of the inspection are finally entered into the test book. The test book is to be kept by the system operator at a save place.

8 Trouble Shooting

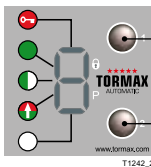
Malfunctions become evident by unusual behaviour of the door and/or as a result of an error message on the user interface. Error messages appear on the user interface as a flashing "E" or "H" followed by two figures.

Indication H = information → the operation of the system can be continued.

Indication E = fault → the system has stopped. It must be repaired.

Some malfunctions can be quickly rectified by restarting the door drive with a software reset and/or briefly switching off the power supply to the door drive.

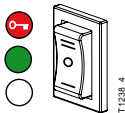
Display and reset of the error with TORMAX user interface



Step through the faults on the display (if several faults are displayed)

1. Reset the error message
2. Push 5 s for software reset

Fault reset with 3-position switch



Software reset in the event of a breakdown: change operating mode.

Fault reset by cutting off the power supply

Installations without battery unit: cut off power supply for approximately 10 s

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. Address see back page or service label at the system.

Fault Table

Behaviour of the System	No.	Cause	Remedial Action / Reset
Door stops during opening.	H91	Electronic obstacle recognition on opening by a person, wind pressure, ventilation.	Remove obstacle. Avoid draught.
Door reverses during closing.	H92	Electronic obstacle recognition on closing by a person, wind pressure, ventilation.	Remove obstacle. Avoid draught.
Door stops repeatedly during opening.	H93	Electronic obstacle recognition on opening in the same position by stationary obstacle.	Remove obstacle.
Door stops repeatedly during closing.	H94	Electronic obstacle recognition on closing in the same position by stationary obstacle.	Remove obstacle.
Information for search run.	H61 H62	Search run of the door after reset or after power recovery.	Allow the search run to be completed.
Door functions with reduced speed.	H71	Battery operation	Wait for power recovery Switch on mains supply.
Door remains closed.	–	Operating mode like for instance "OFF" "EXIT " or "P". Door blocked in lock.	E.g., select operating mode AUTOMATIC 1.
Door remains open.	–	Operating mode like for instance "OPEN" or "P" or door blocked.	E.g., select operating mode AUTOMATIC 1. Remove obstacle, unlock lock
Door remains closed.	E31	Safety facility in opening direction is permanently active (> 1 min.) or defective.	Remove the objects within the range of the sensor.
Door remains open.	E32	Safety facility in closing direction is permanently active (> 1 min.) or defective.	Remove the objects within the range of the sensor.
Door does not open or close	E33	Safety facility in swing area is permanently active (> 1 min.) or defective.	Remove the objects within the range of the sensor.
Door does not open or close	E34	Safety facility stop is permanently active (> 1 min.) or defective.	Remove the objects within the range of the sensor.
Door remains open.	E41 E42 E43	Activator inside is active > 1 min. Activator outside is active > 1 min. Key switch is active > 1 min.	Reset key switch. Get sensor adjusted by a professional.
Door stops.	E5..	Deviation in the travelling path. Fixed obstacle in the travelling range.	Remove firm obstacle in the travelling range of the door. Perform a software-reset.
Door stops.	E61 E62	Power supply is overloaded or voltage too low.	Get the power supply and connections checked by a professional.
Door stops.	E64 E65	Drive/control system is overheated.	Wait for the automatic reset after cooling down. Avoid exposure to the sun.
Door remains open.	E.. E8..	Control unit safety power off	Perform a software-reset.
Door hits a person.	–	Safety facility or adjustment inadequate.	Shut down the system. (see section 2.3)

9 Additional Notes

9.1 Technical Data

Door operator types	iMotion 1301 Swing Door Drive iMotion 1401 Swing Door Drive
Drive system	Electromechanical swing door operator with AC permanent magnet synchronous motor and supplementary spring for currentless resetting.
Control system	Control Unit MCU32
Mains connection	1 x 230/1 x 115VAC, 50 – 60Hz, 10A
Power consumption	
iMotion 1301	5 ... 250 W
iMotion 1401	4 ... 250 W
Sensor power supply	
iMotion 1301	24 V DC / 0.75 A
iMotion 1401	24 V DC / 0.8 A
Protective class of drive	
iMotion 1301	IP 22
iMotion 1401	Drive: IP 67 (7 days, water up to the upper edge of the case) Control box: IP 55
Ambient temperature	-20 °C to +50 °C
Outputs	24 VDC short circuit proof (within power supply 0.75A in total)
Approvals	CE incl. RoHS, TÜV, ETL
Standards	DIN 18650, EN 60335-1, EN 61000-6-2, EN 61000-6-3, UL 325

9.2 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.

9.3 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.

9.4 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.

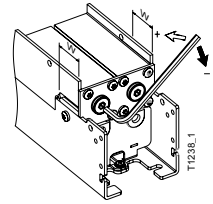


When disassembling the battery module, there is a potential hazard from acid!



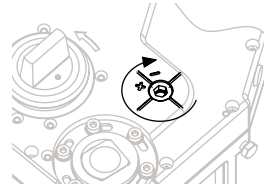
iMotion 1301

When dismantling the drive there is a risk from the pre-tensioned spring! Before opening the case, remove the tension on the spring right up to the stop, as in the drawing ($W = 0$)



iMotion 1401

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





the passion to drive doors

TORMAX Sliding Doors

TORMAX Swing Doors

TORMAX Folding Doors

TORMAX Revolving Doors

Manufacturer:

Advice, sales, installation
Repairs and service:

TORMAX | CH-8180 Bülach-Zürich

Phone +41 (0)44 863 51 11

Fax +41 (0)44 861 14 74

Homepage www.tormax.com

E-Mail info@tormax.com

TORMAX is a Division and a registered trademark of Landert Motoren AG