TORMAX
AUTOMATIC

T-1305 e 17.2.12
Translation of the original
instructions for use

Instructions for Use

For Automatic Swing Doors with Drive

iMotion® 1301 Swing Door Drive

iMotion® 1301.S Swing Door Drive

iMotion® 1401 Swing Door Drive

Table of Contents

First edition: 2.12.11, update: 2.12

1 General Information

Target Groups

- Operator of the automatic swing door. The operator is the person responsible for the operation and maintenance of the system.
- Persons instructed by the operator to carry out certain duties, for example the servicing and maintenance of the automatic swing door.

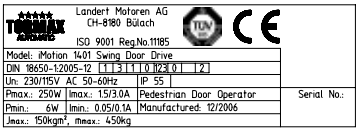
Area of Application

Product name, door system: Automatic swing door

Product name, door drive: **iMotion® 1301 Swing Door Drive**
iMotion® 1301.S Swing Door Drive
iMotion® 1401 Swing Door Drive

Serial number: .....

Identification plate (example)



The identification plate with the serial number is placed in the control box (1401) or on the drive itself under the casing (1301, 1301.S).

These Instructions for Use apply to all the above door drives (see the “Technical Data” section for differences).

Explanation of the Symbols

The warning message warns about possible risk of injury.

Text which is highlighted in grey MUST be observed to ensure that the system operates perfectly. Failure to observe these sections can cause damage to equipment.

Functions marked with this symbol are the factory setting. However, they can be reprogrammed by a skilled person.

◆ Optional components which are not present in all systems.

Technical Data	iMotion 1301	iMotion 1301.S	iMotion 1401
Drive type	Electromechanical swing door operator with AC permanent magnet synchronous motor		
Control system	iMotion MCU32		
Mains connection	1 x 230/1 x 115 V AC, 50 – 60 Hz, 10 A		
Power consumption	6 … 250 W	12 … 330 W	4 … 250 W
Power supply	24 V DC +0,5/–1,5 V, max. 18 W*/ 0,75 A, in battery operation min. 16,5 V 40 V PWM/max. 24 W*/ 2 A, equivalent 6 … 24 V DC, voltage and function programmable. Only for inductive or resistive loads without overload protection. * Total load 30 W	24 V DC +0,5/–1,5 V, max. 36 W*/ 1,5 A, n battery operation min. 16,5 V 40 V PWM/max. 24 W*/ 2 A, equivalent 6 … 24 V DC, voltage and function programmable. Only for inductive or resistive loads without overload protection. * Total load max. 50 W	
Protective class, drive	IP22	IP22	IP 67 (7 days water up to upper edge of floor box)
Protective class, control box	–	–	IP 55
Ambient temperature	–20 °C to +50 °C		
Noise emission level	< 70 db (A)		

2 Safety

2.1 Responsibilities

For instructing the operator:	A skilled person from a TORMAX sales partner
For operating the system:	The operator or a person instructed by the operator
For maintenance and function control:	The operator or a person instructed by the operator
For annual testing and approval:	A skilled person authorised by the manufacturer

Skilled persons are persons who have adequate knowledge in the field of power-operated doors as a result of their specialist training and experience and who are so familiar with the relevant health and safety regulations, guide-lines and generally recognised codes of practice that they are able to assess the condition of power-operated doors with regard to the safety of their operation.

Maintenance of electrical parts must be carried out by a trained electrician.

2.2 Use for the Purpose Intended

The automatic swing door is intended exclusively for use in dry premises in areas used as a pedestrian thoroughfare. Special techniques can also be used to attach the drive unit to the building envelope. The manufacturer will not accept any liability whatsoever for loss or damage caused by improper use, failure to comply with the maintenance specification (see section 6) or unauthorised modification of the system.

2.3 Pre-Conditions for the Operation of the System

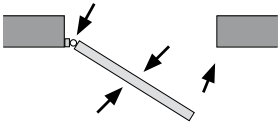
The door system was designed, installed and checked for functionality and safety by skilled persons prior to hand-over to the operator. The company responsible for the system's installation instructed the operator on the system's use and maintenance as well dangers associated with the system operation. The operator has confirmed this by his signature in the system test book T-879.

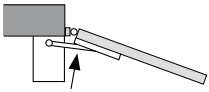
The provisions imposed by law, health and safety and occupational health regulations for the avoidance of accidents and the protection of the environment which are generally applicable in the country in which the system is operated supplement the Instructions for Use.

- Read the Instructions for Use carefully before commissioning the automatic swing door.
- Only use the system when it is in perfect working order. The operating conditions, inspection and maintenance intervals stipulated by the manufacturer must be observed (section 6).
- Safety facilities (e.g. sensor technology, protecting covers) must not be removed or disabled.
- Arrange to have any faults rectified immediately by a skilled person.

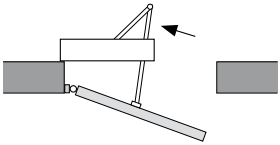
2.4 Hazards and Risks

Depending on the system design and equipment, there is a residual risk of crushing, shearing and collision with limited force in the movement area of the door leaf.





iMotion 1401



iMotion 1301, 1301.S

Hazards can arise:

– in the region of all closing edges (particularly close to the hinge)

– in the region of the linkage lever

– if, for example, sales stands are erected in direct proximity to the operating range of the door leaves

– due to deliberate damage by vandals, defective sensors or sensors which are no longer properly adjusted, sharp edges, incorrectly supported and defective casing or missing covers.

2.5 Checks

The regular checks and examinations set out in Chapter 6 must be carried out as instructed by the manufacturer. The manufacturer recommends that a maintenance contract be concluded in order to operate the system safely and to maintain its value for as long as possible.

2.6 Decommissioning the System in the Event of a Fault

If there is a fault the automatic swing door may only be taken out of service by a skilled person, the operator or a person who is instructed to do so by the operator. This must be done on all occasions on which the safety of persons could be compromised.

- Disconnect the system from the power supply.
- Select operating mode “P” if the system continues to operate using the internal emergency power supply (see section 3.3 for operating modes).
- Open the door manually and secure in the open position if it is installed in an escape route.
- Fire doors must never be secured in the open position even in emergencies.

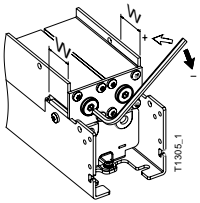
See section 7 for rectification of faults.

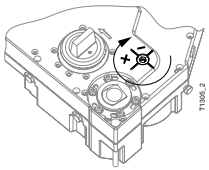
2.7 Disposal

This system must be properly dismantled at the end of its working life. Its disposal must comply with national regulations. We recommend that you contact a skilled person disposal company.

– Aggressive acids.
– Risk of injury if you dismantle the battery module.
– Dispose of batteries properly.

– Flying around parts.
– The tensioned spring represents a hazard when dismantling the drive.
– Before opening the casing, release the tension on the spring up to the stop as indicated in the drawing (iMotion 1301 / 1301.S: W = 0)

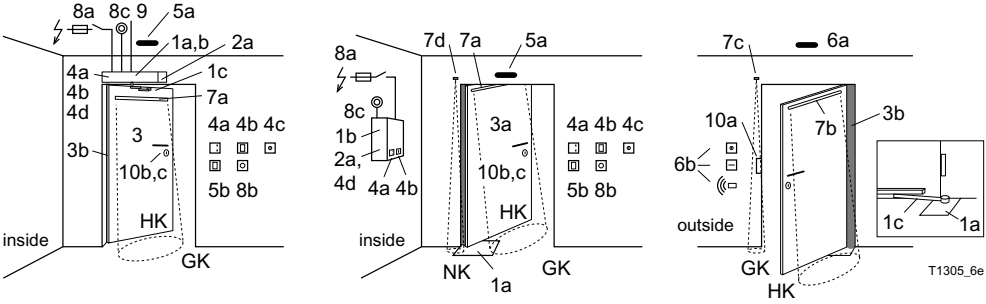




– Broken glass.
– Risk of injury when dismantling the door leaves.
– Take care when transporting the door leaves.

3 Product Description

3.1 System Overview



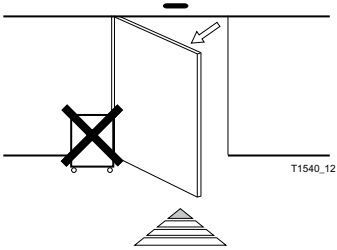
iMotion 1301, 1301.S **iMotion 1401**

1	**Drive**	a) Motor and spring unit b) MCU32 control system with monitoring system, power limitation and permanent diagnosis. ☐ Controlled closing function of the door in power-off condition ☐ Controlled opening function in power-off condition c) Linkage/sliding lever (1301) c) ☐ Pull arm (1401)
2	**Drive accessories ◆**	a) ☐ Emergency power supply via the battery unit ☐ Mechanical closing sequence controller for double-leaf doors ☐ …
3	**Door leaves**	a) Swing leaf with main closing edge (HK) and secondary closing edge (NK) b) ☐ Finger protection to enhance the safety of the secondary closing edge.
4	**Operating controls**	a) ☐ iMotion user interface with 6 operating modes and fault display b) ☐ Operating mode switch with 3 positions. c) ☐ Lock for the user interface d) ☐ Remote control of operating modes
5	**Internal activators**	a) With automatic activation ☐ Radar with/without direction recognition ☐ IR motion detector ☐ Contact mat b) With manual activation ☐ Push button ☐ Contact-free button ☐ …
6	**External activators**	a) With automatic activation ☐ Radar with/without direction recognition ☐ IR motion detector ☐ Contact mat ☐ … b) With manual activation ☐ Key switch ☐ Card reader ☐ Remote control ☐ …
7	**Safety sensors**	a) ☐ Presence sensor safeguarding the swing area when closing b) ☐ Presence sensor safeguarding the swing area when opening c) ☐ Presence sensor safeguarding the opposing closing edge (GK) d) ☐ Presence sensor: secondary closing edge protection ☐ …
8	**Emergency systems**	a) ☐ Power switch/fuse b) ☐ Emergency on/off switch c) ☐ Fire alarm system
9	**Output message**	☐ Bell/gong ☐ Light ☐ Door status
10	**Lock ◆**	a) ☐ Electrical door opener b) ☐ Door handle c) ☐ Mechanical door lock

☐ Depending on the system's equipment

3.2 System Function

The operator of the door system is responsible for ensuring that the automatic swing door is freely accessible at all times. The operator must particularly ensure that the swing area of the door leaves is not obstructed by any objects.



Automatic Door Operation with Sensors

When operating automatically (AUTOMATIC operating mode) the door is automatically opened from both sides by sensors when a person approaches.

A key switch ◆ or card reader ◆ normally allows access from outside when the door is in operating mode EXIT or OFF. The door unlocks, opens and closes again as soon as no further sensors are activated after a hold-open time which is set separately.

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 a time of approx. > 1 minute.

The reduced closing speed which is set by the installer and is adjusted in line with the door weight, combined with a force of < 150 N prevents the impact of the moving leaves on a person from being too severe. The obstruction is also detected by the control system and the door automatically reverses.

Safety sensors are necessary and depend on the design of the door system (distances, speeds, forces applied by the door). When a person moves into the danger area, the door leaf stops or slows down to a very low speed depending upon the settings performed by the fitter at the time of commissioning.

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.

Traffic Control

Movement through the door can be allowed in only one direction if desired (operating mode EXIT) or completely blocked (operating mode OFF).

If there is a high level of pedestrian traffic or if the door is to be used by infirm or frail persons, the door can be switched to operate in operating mode AUTOMAT 2 with a longer hold-open time.

Automatic System Monitoring

The control system monitors the safety sensors by a cycle of active tests. The control system also conducts continuous internal system tests. If a safety-related component should fail, the system automatically switches into a safe condition. At the same time the fault number is displayed on the user interface. You can find further information on this subject in section 5 “Procedure in the Event of a Fault”.

Electric Lock ◆

The system can be locked in the closed position by means of an electric lock ◆.

Operation in the Event of a Power Failure

Depending on the equipment installed, the following functions are possible:

– Controlled closing using the integral spring. The door can be opened manually by means of the door handle (unlocking).
  → The door then closes again in a controlled manner using the integral spring.
– Controlled opening using the integral spring. The door remains open.

– Continued operation for a certain period in the current operating mode by means of a battery unit ◆.
– Unlocking and opening of the door from outside by means of a key switch and the battery unit ◆.

3.3 Operating Modes

The automatic door system can be operated with the TORMAX user interface ◆ (6 operating modes and status display) or with an operating mode switch ◆ (3 operating modes).

Operating Mode OFF

The internal and external sensors are disregarded. The door is mechanically held in the closed position and locked using an electric lock ◆. Access is only possible using the key switch or if the door is manually unlocked using a key or the door handle is used to open the door manually.

The door can still be used for 5 seconds after selecting operating mode OFF. The door then locks at the end of this period as soon as it is closed. The transition is signalled on the user interface by the flashing display of operating mode OFF.

Operating Mode AUTOMATIC 1

The operating mode AUTOMATIC 1 is normally used during the day. The door opens automatically through the inside and outside sensors. The door can behave differently depending on the settings programmed 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 on every valid opening impulse. The door lock must be manually unlocked with the door handle before it is possible to open the door with the “Push- and-Go” system. In this operating mode the door lock can also be permanently unlocked depending on the setting programmed at the time of commissioning.

Operating Mode AUTOMATIC 2

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

Operating Mode EXIT

Operating mode EXIT is normally used for the period before the shop or office closes. The door will only open automatically when activated by the internal sensor. When the door opens the external sensor is also monitored for safety reasons. The open position 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 opens and remains open. The open position is determined by the preceding selection of the operating mode AUTOMATIC 1 or AUTOMATIC 2. The door opens again on receiving the next open impulse or when changing the operating mode to OFF and back again to OPEN.

P Operating Mode Manual Operation

The door leaf can be freely moved. This operating mode can be used for cleaning the door leaf or for temporarily shutting down the door. The system is reset after leaving this operating mode.

In this operating mode the door lock can also be permanently unlocked depending on the setting programmed at the time of commissioning.

4 Operation

The automatic swing door may only be operated by a skilled person, the operator or a person instructed by the operator.

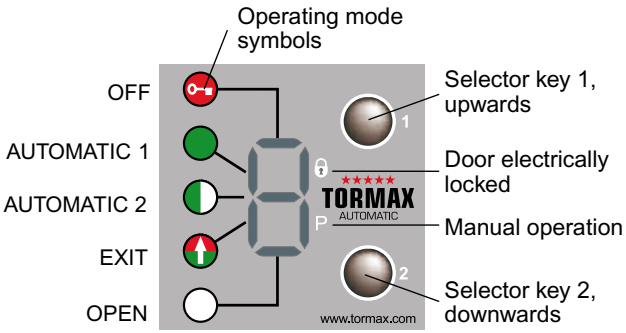
4.1 Commissioning

Before switching on the mains power supply:

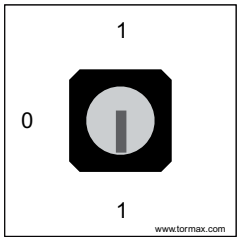
- Unlock the optional mechanical door lock.
- Check that the movement area of the door leaves is free from obstructions such as racks, plant containers, umbrella stands etc.
- Switch on the mains power supply and select operating mode AUTOMATIC 1, for example.
  → The first movement after switching the power on for the first time is slow and H62 and H67 are displayed. The control system is defining the closed position of the door leaf (H62) and is checking the door leaf travel distance (H67).
  → The door is now ready for operation.

4.2 Operation with the TORMAX User Interface ◆

TORMAX User Interface ◆



Lock ◆ for User Interface



Selection of Operating Modes

- Release lock ◆ for user interface.
- Press selector keys 1 or 2 briefly. The corresponding operating mode symbol is illuminated.

Fault Display

E.g. H91 or E42 → See section 7 for the meaning of the display.

- Reset by pressing the selector key 2 briefly.

Resetting the System

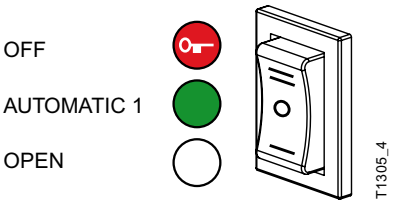
- Press the selector key 2 for at least 5 seconds.

The software is restarted. The control system then conducts a calibration run, checks the travel distance and looks for the closed position. Displayed as H62 and H67.

4.3 Operation with an Operating Mode Switch ◆

Selection of Operating Modes

The switch position defines the operating mode.



Resetting the system

– Change the operating mode in the event of a fault

or

– Cut off power supply to the system for at least 5 seconds.

4.4 Operation on Power Failure

Opening a Door using a Key Switch ◆ with a Battery Unit ◆

- Turn the key switch to the “on” position and hold in place for at least 5 seconds, then turn the key to the original position.
  → The battery is activated using the “wake up” function.

The key switch must not remain permanently in the “on” opposition.

→ The door is unlocked and opened.

→ The battery switches off again after the time programmed 🖫 by the installation engineer or when the battery is fully discharged.

If required, the operating mode can be changed on the user interface during the wake-up.

4.5 Resetting the Panic Fitting ◆

- Select operating mode OFF (operating mode switch ◆, user interface ◆) or disconnect the operator from mains (installation switch, mains plug).
- Push the door leaf back into the initial position.
- Choose operating mode AUTOMATIC 1 or switch on operator.

5 Procedure in the Event of a Fault

Faults are evident from abnormal door behaviour and/or as a fault display on the user interface. Fault displays on the user interface take the form of a flashing “E” or “H” followed by two figures.

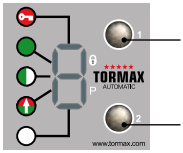
H = notification > the system can continue to be used.

E = fault > the system is stationary.

Some faults or notifications can be rectified by restarting the door drive with a software reset and/or briefly disconnecting the system from the power supply.

Fault Display and Reset Using the TORMAX User Interface

See the table in section 7.1 for an overview of the fault displays.



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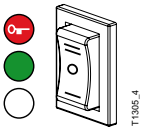
Browse through the fault display using selector key 1 upwards (to display several faults).

1. Reset the fault display, press selector key 2 (downwards) briefly.
2. Software reset: press the key for 5 seconds.

Reset of the Fault with the Operating Mode Switch



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

Reset of the Fault by Disconnecting the Power Supply

If the system does not have a battery unit, disconnect from the power supply for about 10 seconds.

If this does not reset the fault or if it re-occurs after a short time, you must arrange for the fault to be rectified by a skilled person from your TORMAX dealer. In this case note the fault number and inform the dealer. See the last page or the service tag on the system for the dealer’s address.

6 Maintenance

The system was tested and approved by a skilled person before initial commissioning. The manufacturer recommends that you conclude a service contract in order to maintain the value of your system for as long as possible as well as to ensure the system operates reliably and safely for a long time.

Only genuine TORMAX spare part should be used. The manufacturer accepts no liability if you fail to observe this requirement.

The following maintenance work must be carried out:

6.1 Cleaning

– Closing doors can crush – danger!
– Trapped limbs can lead to serious injury.
– The system must only be cleaned in operating mode OFF, OPEN or Manual Operation.

- Clean the control box, user interface, the covers and door leaves with a damp cloth and a commercial cleaning agent.

6.2 Functional Checks

The operator must check the function and safety devices of the automatic swing door at least every three months. This will ensure that faults or hazardous changes in the system are detected at an early stage. See section 7.2 “Check-list for Functional Checks” for items to be checked.

You should arrange for any defects detected during the routine checks to be rectified immediately by a TORMAX dealer (see the last page of this Manual for the address).

– Possible malfunction of the automatic swing door.
– Potential hazards – injury caused by impact or crushing.
– Do not use any part of your body for functional checks. Use a suitable object (e.g. styrofoam or cardboard) instead.

6.3 Maintenance and Testing

Maintenance and testing should only be carried out by a trained skilled person following the manufacturer’s instructions.

Maintenance Interval

The maintenance interval depends on the frequency of use but the system must be maintained at least once per year.

Scope of the Maintenance Work

The content of the maintenance work is specified by the manufacturer in an inspection list.

System Test Book

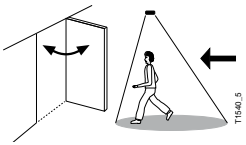
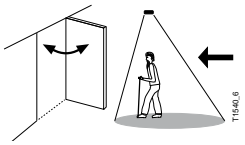
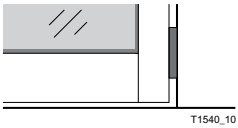
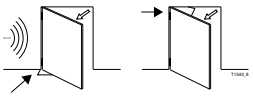
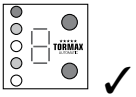
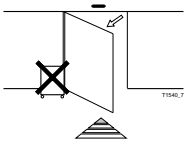
The test findings are recorded after the test in the system test book. The operator must keep it in a safe place.

7 Appendix

7.1 Fault Table

System Behaviour	No.	Cause	Remedy/Rectification
The door stops when opening.	H91	Electronic obstacle recognition caused by persons, wind pressure and ventilation when opening.	Remove the obstruction. Avoid drafts.
Door reverses when closing.	H92	Electronic obstacle recognition caused by persons, wind pressure and ventilation when closing.	Remove the obstruction. Avoid drafts.
The door stops repeatedly when opening.	H93	Electronic obstacle recognition on opening in the same position by stationary obstacle.	Remove the obstruction.
The door stops repeatedly when closing.	H94	Electronic obstacle recognition on closing in the same position by stationary obstacle.	Remove the obstruction.
Search run notified.	H62 H67	Search run of the door after a reset or after power recovery.	Allow the search run to travel its full course.
Door operates at a reduced speed.	H71	Battery operation	Wait for power recovery Switch on mains supply.
Door remains closed.	–	Operating mode for example OFF, EXIT or P. The door is prevented from moving by the lock.	E.g. select operating mode AUTOMATIC 1. Unlock the lock. Push the door closed briefly.
Door remains open.	–	Operating mode for example OPEN or P. The door is prevented from moving by the lock.	E.g. select operating mode AUTOMATIC 1. Remove the obstruction.
The door remains closed.	E31	The safety facility in the opening direction is permanently active (>1 minute) or defective.	Remove objects from within the range of the sensor(s).
The door remains open	E32	The safety facility in the closing direction is permanently active (>1 minute) or defective.	Remove objects from within the range of the sensor(s).
The door does not open or does not close.	E33	The safety facility for the swing area is permanently active (>1 minute) or defective.	Remove objects from within the range of the sensor(s).
The door does not open or does not close.	E34	The stop safety facility is permanently active (>1 minute) or defective.	Remove objects from within the range of the sensor(s).
The door remains open.	E41 E42 E43	Activator inside is active > 1 min. Activator outside is active > 1 min. Key switch is active > 1 min.	Get sensor adjusted by a skilled person. Reset the key switch.
The door stands still	E5..	Anomaly in the travel distance. Solid obstruction in the movement area.	Remove firm obstacle in the travelling range of the door. Perform a software-reset.
The door stands still	E61 E62	Power supply is overloaded or voltage too low.	Get the power supply and connections checked by a skilled person.
The door stands still	E64 E65	Drive/control system is overheated.	Wait for the automatic reset after the door/control system has cooled. Protect from direct sunlight.
The door stands still.	E.. E8..	Control system shut down for safety reasons.	Perform a software-reset.
The door collides with people.	–	Safety device or setting inadequate.	Shut down the system. (see section 2.6).

7.2 Check-List for Functional Checks

Item To Be Checked	Procedure	Result
Sensors		
	• Walk through the door directly from the front and from different directions at normal speed, starting both from the inside and outside.	The door opens at the right time and with sufficient speed so that passage through the door Is not hindered.
Safety Sensors		
	• Walk through the door directly from the front and from different directions at a slow speed like an infirm person, starting both from the inside and outside.	The door opens and remains open until you are completely through the door.
Swing Leaf, Door Frame		
	• Check the glass door fillings, door edges and rubber profiles for damage.	The door fillings have no sharp edges and splintered glass. The side parts and the door seals are in place and undamaged.
Panic Fitting ◆		
	• Isolate the drive from the power supply (main system switch, mains plug) or select operating mode OFF. Then push the door in the direction opposite to the opening direction until the panic fitting releases the door leaf. Now push the door leaf back to the initial position.	The panic fitting can be released and returned to the initial position.
Drive, Lever and Hinges		
 iMotion 1401 iMotion 1301, 1301.S	• Check the noises made while the door moves.	No unusual and noticeable noise can be heard from the drive, the lever or in the region of the hinges. No significant wear is visible.
Operating components, lettering and marking		
	• Check the function and marking of operating controls. Check all lettering and marking for their condition.	The operating controls are functioning correctly; the markings are visible and legible.
System Vicinity		
	• Check access to the door and the movement area of the door leaves.	Access to the door is free from objects and items likely to cause the user to trip. There are no objects such as shelves, plant containers and umbrella stands within a radius of 50 cm of the movement area.

Declaration of Conformity

In the sense of the guideline for machines 2006/42/EG, appendix II A

Product:	Automatic Swing Door		
Type designation:	❑ iMotion 1301	❑ iMotion 1301.S	❑ iMotion 1401
Serial number:	.		
Manufacturer's address :	.		

Base documents: Declaration of incorporation by TORMAX | Landert Motoren AG with the document number: T-1542

Additionally to the standards listed in the declaration of incorporation this door installation is in conformity with the regulations listed below:
DIN 18650-2

We declare in sole responsibility, that the above mentioned product, which is referred to by this declaration, is in conformity with the guideline for machines 2006/42/EG (Declaration of incorporation T-1542).

Furthermore, the guideline 2006 /95 / EG (low tension) and 2004 /108 / EG (electro-magnetic-compatibility) must also be adhered to. This product is in conformity with the base documents and standards listed above (Declaration of Conformity T-1309).

Place:

Date:

CE authorized person:

TORMAX
AUTOMATIC

the passion to drive doors

TORMAX Sliding Door Drives

TORMAX Swing Door Drives

TORMAX Folding Door Drives

TORMAX Revolving Door Drives

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