

TSA 160 NT

TSA 160 NT F

TSA 160 NT Z

TSA 160 NT Invers

TSA 160 NT Z-Invers

TSA 160 NT-IS

TSA 160 NT F-IS

TSA 160 NT Z-IS

TSA 160 NT-IS / TS

TSA 160 NT Z-IS / -TS

135254-04

Original operating instructions

EN User manual



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TSA 160 NT Introduction

1 Introduction

1.1 Symbols and illustrations

Warning notices

Warning notices are used in these instructions to warn you of property damage and personal injury.

- ▶ Always read and observe these warning notices.
- ▶ Observe all measures marked with the warning symbol and warning word .

Warning symbol Warning word Meaning



CAUTION

Danger to persons.

Non-compliance can result in minor to medium injuries.

Further symbols and illustrations

Important information and technical notes are highlighted to explain correct operation.

Symbol Meaning



means "important note";

information about avoiding property damage



means "additional Information"

The user's attention should be drawn to important addition information. There is no danger to persons or property, but it is particularly useful to read the additional information carefully.

•

Symbol for an action: This means you have to do something.

▶ If there are several actions to be taken, keep to the given order.

1.2 Product liability

In compliance with the liability of the manufacturer for his products as defined in the German "Product Liability Act", compliance with the information contained in this brochure (product information and intended use, misuse, product performance, product maintenance, obligations to provide information and instructions) must be ensured. Failure to comply releases the manufacturer from his statutory liability.

1.3 Special cases

In certain cases, deviations from the information given in this user manual may occur. Examples:

- special wiring
- special function settings (parameters)
- special software
- ▶ Please contact the service technician responsible for further information.

1.4 More detailed information

Information about commissioning and service can be found in the following documents:

- wiring diagram TSA 160 NT
- installation instructions TSA 160 NT

Introduction TSA 160 NT

1.5 Terms

Term	Explanation
Hinge side	The side of the door where the hinges from which the door leaf is suspended are located. Usually that side of the door located in the opening direction.
Opposite hinge side	The side of the door facing the hinge side. Usually that side of the door located in the direction of closing movement.
Active leaf	The active leaf of a double-leaf door. When the door is used, the active leaf must open as the first door leaf and close as the last door leaf.
Passive leaf	The secondary leaf of a double-leaf door. When the door is used, the passive leaf may not open until the active leaf has left the closing position and must close again as the first door leaf.
Activation device - inside (KI)	Push button, switch or movement detector for activating the door drive. The activation device is located within the room enclosed by the door. Activation function in the modes of operation AUTOMATIC and EXIT ONLY 1). The activation device does not have any function in the NIGHT/OFF mode of operation.
Activation device - outside (KA)	Push button, switch or movement detector for activating the door drive. The activation device is located outside the room enclosed by the door. Activation function in the AUTOMATIC mode of operation. The activation device does not have any function in the EXIT ONLY 1) and NIGHT/OFF modes of operation.
Activation device authorised (KB)	Access control function (for example key switch or card reader) used by authorised persons to activate the door drive. The control function is active in the AUTOMATIC, EXIT ONLY ¹⁾ and NIGHT/OFF modes of operation.
Activation device with current impulse function	Push button for opening and closing the door. Control function only in the AUTOMATIC and EXIT ONLY modes of operation ¹⁾ . The door is opened automatically when the button is first pressed and closed again automatically when the button is pressed the second time. The function can be activated during commissioning by parameter setting.
Push&Go	When the door is pressed manually out of the closing position during an activated closing position inhibition, the door opens automatically as soon as a specific adjustable opening angle is exceeded.
Opening safety sensor (SIO)	Presence detector (e.g. active infrared light switch) for protecting the swinging range of the door in the opening direction. As a rule the sensor is located on the hinge side of the door on the door leaf.
Closing safety sensor (SIS)	Presence detector (for example active infrared light switch) for protecting the swinging range of the door in the closing direction. As a rule the sensor is located on the opposite hinge side of the door leaf.
Stop	Self-locking switch with which immediate stopping of the door drive can be triggered in case of danger. The door drive remains in its current position until the user unlocks the stop switch again, thus terminating the stop situation.
Closing sequence control	Electrical closing sequence control In normal operation of double-leaf door drives, the closing sequence of the door leaves is controlled by the control units of the door drives, with the passive leaf being closed first. The active leaf remains in the open position until the hold-open time of the passive leaf has expired. Only then does the active leaf begin to close. Integrated closing sequence control (-IS): In the event of a power failure for 2-leaf door systems, the closing sequence is controlled mechanically with TSA 160 NT-F-IS. The door leaves are closed by means of the power storage of the drives, with the active leaf being kept open by the integrated mechanical closing sequence control unit at approximately 30° opening angle before the closing position is reached. When the passive leaf has reached the closing position, it releases the active leaf by means of the mechanical elements of the integrated closing sequence control so that it can also close completely

¹⁾ The EXIT ONLY mode of operation can only be selected with the optional mechanical programme switch.



TSA 160 NT Introduction

Term	Explanation
Electric strike	Fail-secure electric strike Available as AC or DC electric strike version. When the door drive is activated, the electric strike is switched on by the control unit of the door drive provided the door is in the closing position. The electric strike remains activated until the door has left the closing position. Fail-safe electric strike DC electric strike version. The electric strike is switched off when the door drive is activated provided the door is in the closing position. The electric strike remains switched off until the door has left the closing position.
Bar feedback	The bar feedback function is a contact integrated in the door catch that is activated when the door is locked mechanically by the tie bolt of the door lock. It signals to the control unit that the door is locked mechanically and can therefore not be opened by the door drive. In this case the control unit ignores the control commands of all the activation devices.
Reset	Push button for restarting the drive after the operating voltage has been switched on or after a fire alarm has been terminated. When the push button is pressed, the self-retention integrated in the drive is activated, causing the drive to be activated.
Latching function	When the door is closed in a de-energised state, the door leaf is impeded by the lock latch of the electric strike. To make sure the door can pass the lock latch safely during closing, an integrated limit switch is activated in the drive once a specific opening angle has been reached, reducing the braking strength. The door accelerates and closes into the lock at increased speed. In an energised state, this function is regulated by the drive control unit.



2 Fundamental safety precautions

2.1 For the user

Carefully read and abide by this user manual before commissioning the door. Always observe the following safety instructions:

- Operating, maintenance and repair conditions specified by GEZE must be observed.
- The commissioning, mandatory installation, maintenance and repair work must be performed by experts authorised by GEZE.
- The connection to the mains voltage must be made by a professional electrician.
- No changes may be made to the system without prior agreement from GEZE.
- GEZE shall assume no liability for damage caused by unauthorised changes to the system.
- The owner is responsible for safe operation of the system.
- Have a service technician check the safe operation of the system at regular intervals.
- Should safety devices be misaligned, thus preventing them from fulfilling their intended purpose, further operation is not permissible. The service technician must be informed without delay.
- Make sure that the safety stickers are attached visibly to any glass leaves and are in a legible state.
- Protect the programme switch against unauthorised access.
- Danger of injury by sharp edges on the drive when removing the cover
- Danger of injury by parts hanging down
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
- Children shall not play with the appliance.
- Cleaning and user maintenance shall not be made by children without supervision.

2.2 For the service technician

- GEZE does not accept any warranty for combinations with third-party products.
- Only combine third-party products with original parts following agreement by GEZE. Furthermore, only original GEZE parts may be used for repair and maintenance work.
- The power connection and safety earth conductor test must be carried out in accordance DIN VDE 0100-610.
- Use a customer-accessible 16-A overload cut-out that disconnects the system from the power supply as the line-side disconnecting device.

2.3 Intended use

The TSA 160 NT swing door drives are designed for the automatic opening and closing of single action swing doors.

The above mentioned door drive is suitable

- solely for use in dry rooms
- in entrances and indoor areas of pedestrian traffic on commercial premises and in public areas
- in private areas

The TSA 160 NT / TSA 160 NT IS/TS door drive

- may be used in escape and rescue routes
- must not be used on fire or smoke protection doors
- must **not** be used for potentially explosive areas.

The TSA 160 NT F/TSA 160 NT F-IS door drive

- may be used in escape and rescue routes
- may be used on fire or smoke protection doors
- must **not** be used for potentially explosive areas.

The TSA 160 NT Invers door drive

- is designed mainly for use on escape route doors and smoke and heat extraction system doors
- must **not** be used for potentially explosive areas.



TSA 160 NT Description

3 Description

3.1 Types of installation and versions

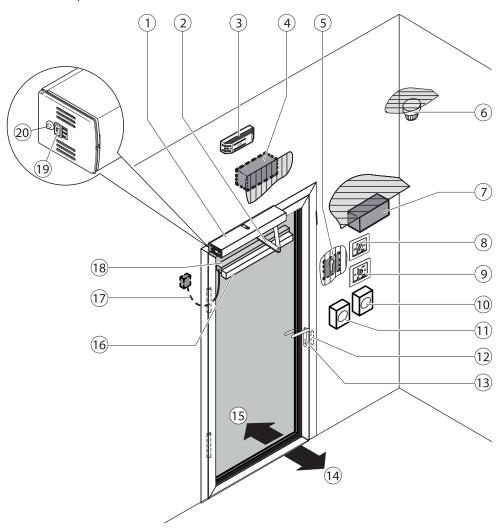
System parts and options

- The door drive can be fitted in transom installation on the lintel on the hinge side or opposite hinge side.
- The door drive is available as 1-leaf or 2-leaf version.
- The TSA 160 NT F-IS and TSA 160 NT IS/TS systems can only be fitted in transom installation.

3.2 Set-up

The door system shown is only a schematic diagram. For technical reasons, we cannot show all of the possibilities here. The operating elements can be arranged individually.

Example: door drive TSA 160 NT, 1-leaf, transom installation



- 1 Door drive
- 2 Link arm or roller guide rail
- 3 Smoke switch control unit *)
- 4 Activation device outside (KA) (optional)
- 5 Activation device authorised (KB) (optional)
- 6 Smoke switch *)
- 7 Activation device inside (KI) (optional)
- 8 Programme switch (optional)
- 9 Lockable mechanical program switch (MPS-ST) for releasing the programme switch
- 10 Stop switch (optional)
- optional, in connection with TSA 160 NT F

- 11 CLOSE DOOR manual trigger switch *)
- 12 Electric strike (on site)
- 13 Door handle with door lock (on site)
- 14 Inside building
- 15 Outside building
- 16 Closing safety sensor (SIS) (optional)
- 17 Door transmission cable (optional)
- 18 Opening safety sensor (SIO) (optional)
- 19 Internal programme switch
- 20 Reset switch (F-reset) (TSA 160 NT F only)



Description TSA 160 NT

3.3 Overview of the modes of operation

The following modes of operation can be set on the TSA 160 NT:

- Automatic mode
- Exit only
- Hold open
- Night mode
- OFF

Mode of operation	TPS*	MPS/MPS-ST**	DPS***		Explanatory notes
			Key	Display	
Automatic				Ru	Door opens and closes again. The inside and outside activation devices are active. Refer also to chapter 3.5
 Opening of 2 leaves 			+ +	‡	When the keys are pressed simultaneously, the mode of operation changes between 1-leaf opening and 2-leaf opening.
 Opening of 1 leaf 	**	*	+ +	*	On the DPS the LED 🏶 is lit in 1-leaf operation.
Exit only				L5	Door only opens and closes if someone exits. Only the inside activation devices are active.
Hold open				do	Door remains open.
Night mode				nβ	Door opens and closes only when activated using the key switch The inside and outside activation devices are inactive.
OFF	OFF	OFF	OFF	oF	Door is enabled and can be moved by hand. The inside and outside activation devices are inactive.

^{*} Keypad programme switch (TPS)

3.4 Operating elements

The modes of operation can be set using the following operating elements:

- Internal programme switch on the door drive
- Keypad programme switch (optional) (see chapter 3.4.2)
- Mechanical programme switch MPS with/without integrated key switch (optional) (see chapter 3.4.3)
- Display programme switch (optional) (see chapter 3.4.4)

3.4.1 Internal programme switch

The following modes of operation can be set using the internal programme switch:

Position II
 Position 0
 Night/Off
 Position I
 Hold open.

Special cases (e.g. special circuiting) may occur during the operation of the GEZE door drives. Behaviour may differ. If this is the case, please ask the service technician responsible.



^{**} Mechanical programme switch (MPS)/mechanical programme switch with integrated key switch (MPS-ST)

^{***} Display programme switch

TSA 160 NT Description

3.4.2 Keypad programme switch TPS (optional)



- Can be connected additionally to the internal programme switch (19).
- Setting of the mode of operation with the keypad programme switch is only possible when the internal programme switch is set to the 0 position.

The system mode of operation is selected and the corresponding programme is displayed at the keypad programme switch. The keypad programme switch is accessible for everyone without a key switch. If desired, an additional key switch can be used for locking.



Keypad programme switch TPS

3.4.3 Mechanical programme switch MPS (optional)



Can be connected additionally to the internal programme switch (19).

At the mechanical programme switch MPS, the mode of operation for the system is selected and the corresponding programme is displayed. The mechanical programme switch is accessible for everyone without a key switch.



Mechanical programme switch MPS

With the mechanical programme switch MPS-ST, selection of the modes of operation is disabled if the key provided has been removed.



Mechanical programme switch MPS-ST with integrated key switch

Description TSA 160 NT

3.4.4 Display program switch (optional)

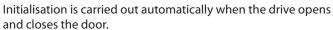


Can be connected additionally to the internal programme switch (19).

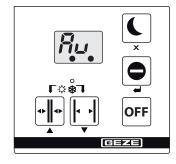
If a dot appears in the bottom right-hand part of the display, maintenance is due.



If a dot appears in the middle of the display, the door has not yet been fully initialised after the mains voltage has been switched on.







Display programme switch

3.5 Door in normal operation

In normal operation, the door is automatically opened and closed.

What happens?	What does the door do?
An activation device (push button, switch or movement detector) is triggered	Door opens, waits the hold-open time and then closes again
Safety sensor close (SIS) is is triggered when the door is open (e.g. light sensor)	Door remains open
Closing safety sensor (SIS) is triggered while the door is closing.	Door reopens immediately
Opening safety sensor (SIO) is triggered while door is opening.	The door stops and remains in position until the end of activation (door opens) or until the end of the hold-open time (door closes)
Opening safety sensor (SIO) is triggered when the door is closed.	Door remains closed
A person moves toward the opened door and a movement detector is triggered	Door remains open
A person moves toward the closing door and a movement detector is triggered	Door reopens immediately
Door contacts an obstruction while opening	The door tries to open and closes after a motor running time (10s) + 10 sec. + hold-open time (depending on setting)
Door contacts an obstruction while closing	The door presses closed with spring force

Additional door functions

Which switch/push button?	What does the switch/push button do?
Stop switch	The door stops immediately (in every mode of operation) and holds the position until the stop switch is unlocked
Activation device authorised (KB) (e.g. outside key switch)	Door opens once and closes after the hold-open time. The set mode of operation is retained.
Activation device with radio board	Door opens once and closes after the hold-open time. The set mode of operation is retained.



TSA 160 NT Operation

Which switch/push button?	What does the switch/push button do?
Switch function	 The automated door can be activated using the switch function. Normal switch function: Switch contact opens the door and the door remains in the open position. Switch contact closes the door. Switch function with hold-open time: Switch contact opens the door. Switch contact closes the door or the door starts to close after the hold-open time.
Double push button	In the case of 2-leaf drives, a button with a double function can be connected via a configurable push button. This means that 1-leaf or 2-leaf opening is possible by pressing the push button. If the push button is pressed once, only the active leaf opens and closes after the hold-open time has expired. If the button is pressed twice within 1.5 s, both leaves open and close after the double leaf hold-open time has expired.
Emergency lock	When the emergency lock is used, a switch can close the 1- or 2-leaf system immediately. The doors close with the set force and without sensor sensors. There is an increased risk of injury.

4 Operation



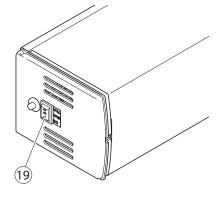
The set parameters of the drive functions may only be modified by a service technician.



The door parameters can be set or modified using the service menu. Querying and modifying of the set drive parameters are described in the wiring diagram.

- 4.1 Selecting the mode of operation
- 4.1.1 Selecting the mode of operation at the mechanical programme switch
 - ▶ Use the internal programme switch (19) to choose one of the three positions:
 - Position II Automatic
 - Position 0 Night/Off
 - Position I Hold open.

The required mode of operation is set.



Operation TSA 160 NT

4.1.2 Selecting the mode of operation using the keypad programme switch

▶ Select the mode of operation required using the push buttons △ and ▽. The LED of the current mode of operation lights up.

Selecting mode of operation with additional key switch

► Activate the key switch briefly.

The keypad programme switch is released, the required mode of operation can be selected.

Activate the key switch briefly again.

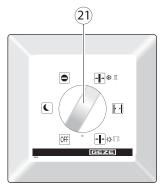
The keypad programme switch is blocked.



4.1.3 Selecting the mode of operation at the mechanical programme switch MPS

With the programme switch MPS

► Turn the rotary switch (21) to the required mode of operation. The mode of operation is set.

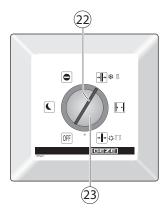


Mechanical programme switch MPS

With the programme switch MPS-ST (key switch

- ▶ Insert the key (22) into the mechanical programme switch MPS-ST.
- ► Turn the key rotary switch (23) to the required mode of operation. The mode of operation is set.
- ► Remove the key.

The mechanical programme switch MPS-ST locked.



Mechanical programme switch MPS-ST with integrated key switch

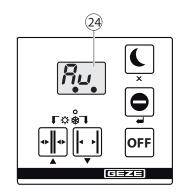


TSA 160 NT Troubleshooting

4.1.4 Selecting the mode of operation using the display programme switch

► Touch the required mode of operation on the display programme switch.

The mode of operation is set and indicated on the display (24).



Display programme switch

Fault messages on the display

If a fault occurs in the door system, it is displayed on the display programme switch about every 10 seconds.

▶ Read off the number of the fault message, note it down and notify the service technician.

5 Troubleshooting

Problem	Cause	Re	emedy
Door opens and closes	Obstruction in travel path	•	Clear the obstruction
constantly	Light beams or reflections, e.g. reflective floor, rain drops	•	Check detection area of movement detector
	Misaligned movement detector	•	Check detection area of movement detectors, inform service technician if necessary
	Closing safety sensor (SIS) soiled	•	Clean the closing safety sensor
	Opening safety sensor (SIO) soiled	•	Clean the opening safety sensor
Door only opens a crack	Obstruction in travel path	•	Remove obstruction and check door leaf for ease of movement
Door does not open	Obstruction in travel path	•	Remove obstruction and check door leaf for ease of movement
	Movement detector misaligned or defective (outside)	•	Check the movement detector, notify a service technician if necessary
	Stop activated	•	Unlock the stop
	"Night" mode of operation	•	Select a different mode of operation
	"Exit only" mode of operation	•	Select "Automatic" mode of operation
	Door locked mechanically	•	Unlock the door
	Electric strike does not release	•	Notify a service technician
	Fire alarm active (TSA 160 NT F only)	•	Activate reset push button
	Drive defective	•	Notify a service technician
Door does not close	Closing safety sensor (SIS) soiled	•	Clean the closing safety sensor (SIS)
	Closing safety sensor (SIS) misaligned or defective	•	Notify a service technician
	Obstruction in travel path	•	Remove obstruction and check door leaf for ease of movement
	Movement detector operates uninter- ruptedly	•	Check the movement detector, notify a service technician if necessary
	"Hold open" mode of operation	•	Select a different mode of operation
	Current impulse push button function controls	•	Terminate activation by pressing the push button again
Display programme switch	Display programme switch is disabled	•	Activate key switch for release
cannot be operated	Display programme switch defective	•	Notify a service technician



Problem	Cause	Remedy
Display programme switch displays 2 8	Connection between display programme switch and control unit faulty	Notify a service technician
	Display programme switch or control unit defective	Notify a service technician
Display programme switch	Mains power failure	► Check mains fuse
is dark	Connection between display programme switch and control unit faulty	Notify a service technician
	Display programme switch or control unit defective	Notify a service technician
Display of fault messages on the display programme switch	Fault in the door system	 Note fault messages. Up to 10 different fault messages can occur in succession. The display changes about every 10 seconds. Notify a service technician

6 Cleaning and maintenance



A CAUTION!

Danger of injury due to impact and crushing.

- ▶ Disconnect the drive from the 230 V mains network before carrying out cleaning work.
- ► Secure door leaves against accidental movement before carrying out cleaning work.

6.1 Cleaning

What is to be cleaned?	How is it to be cleaned?
Optical safety sensors (e.g. light switches)	Wipe with moist cloth.
Glass surfaces	Wipe with a cold vinegar/water mixture; then dry.
Stainless surfaces	Wipe with non-scratching cloth.
Coated surfaces	Wipe with water and soap.
Anodised surfaces	Wipe with non-alkaline potassium soap (pH value 5.57)
Mechanical programme switch	Wipe with damp cloth. Do not use a cleaning agent

6.2 Maintenance

The owner must ensure that the system is working perfectly. To guarantee perfect operation, the door system must be serviced regularly by a service technician.

Maintenance must be carried out at least once a year or according to the maintenance display on the display programme switch.

Installation, maintenance and repair work must be performed by experts authorised by GEZE.

If a dot appears in the bottom right-hand part of the display, maintenance is due.

▶ Notify a service technician.



The maintenance display lights up after the specified calendar period or number of opening cycles, depending on what occurs first:

GEZE offers maintenance contracts with the following services:

- Inspection of fixing elements for firm fit
- Performance of miscellaneous adjustment work
- Performance of operational checks
- Checking all the safety and control equipment of the door system
- Lubrication of all the moveable parts

TSA 160 NT Technical data

6.3 Inspection by an expert

In compliance with the "Guidelines for windows, doors and gates" (ASR A1.7 and GUV 16.10) Section 6, power-operated doors must be inspected for safety by an expert before initial commissioning and at least once a year. GEZE offers the following services:

Inspection and operational checks of all safety and control equipment in compliance with the requirements in the test log for power-operated windows, doors and gates; Sliding doors and sliding gates ZH 1/580.2 edition.

7 Technical data

Opening speed can be set by means of hydraulic valve
Closing speed can be set by means of hydraulic valve

Mains voltage 230 V AC –15%, +10%

Frequency 50 Hz
Capacity rating 300 W

Control voltage for external components 24 VDC ±10%

Output current control voltage 24 V 1200 mA permanently

Temperature range −15 ... +50 °C

IP rating IP20



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