

TS 971 door control

“Integrated radio”

Automatic control panel for GfA ELEKTROMATEN® drives
with DES digital limit switch or NES mechanical limit switch

Approvals and certificates

TS 971

Type test according to:

DIN EN 12453 DIN EN 12978
DIN EN 60335-1 DIN EN 60335-2-103
DIN EN ISO 13849-1 TÜV NORD CERT GmbH



TS 971 – Automatic control panel for DES / NES limit switches

Technical data

- For GfA ELEKTROMATEN drives with DES or NES
- Supply voltage:
1N~230 V, PE / 3~230 V, PE / 3N~400 V, PE / 3~400 V, PE
- Operating frequency: 50 Hz / 60 Hz
- Control voltage: 24 V DC
- Mains supply ratings for external devices: 24 V DC (0.35 A or 1.0 A) / 230 V AC (1.6 A)
- Permissible temperature range: -10 °C...+50 °C

Housing

- Dimensions W x H x D [mm]: 155 x 386 x 90 (118¹⁾)
- IP65 rated when hard wired or IP54 if CEE plug used
- Protection against contact provided by covers for live parts
- Top and bottom entry for ELEKTROMATEN connection cables

Design

- Integrated OPEN-STOP-CLOSE control device with lighting system that prompts operator
- Safety reversing contactor (with 2 independent shutdown options)
- Settings via selector switch with digital display
- Pluggable connection technology
- Connection cable running to ELEKTROMATEN available in various lengths
- Integrated radio transmission system for safety devices (WSD²⁾) or pluggable connection technology for spiral cables
- Integrated radio receiver for 434 MHz systems of various manufacturers
- Two independent, programmable relay contacts, e.g. usable for red/green traffic-lights or dock leveller enabling
- UBS³⁾ module for the simple connection of control devices, photo cells, etc. (for details on UBS accessories, see 8.091)
- Slack-rope and pass-door plug-in connection points (also via WSD)

¹⁾ Version with mains switch

²⁾ Wireless Safety Device

³⁾ UBS universal command sensor system (see 8.091)

Accessories

- Mains switch/isolator
- Emergency STOP switch
- Key switch
- For description and details on further accessories, see 8.075

Functions

- Automatic detection of DES or NES limit switches
- Change of rotating direction from control panel push buttons
- Adjustment of limit positions (only DES) and all functions from the operator level
- Selectable operating mode:
 - CLOSE/OPEN in hold-to-run mode
 - CLOSE in hold-to-run mode/OPEN in self-hold mode
 - Hold-to-run operation with active safety edge system
 - CLOSE/OPEN in self-hold mode
- Automatic safety edge detection and evaluation:
 - Optical safety edge system (e.g. Vitector system)
 - NO-contact principle, 8k2
 - NC-contact principle, 1k2, with testing
- Automatic closing with adjustable time setting (1-240 seconds) (function can also be activated/deactivated):
 - Once the top limit position or intermediate open position has been reached, the door closes automatically after the set duration
 - Interruption to timer possible via photo cell activation
- Adjustable intermediate open position with individual programming options
- Setting of the permissible number of safety-edge actuations for automatic closure (0-10)
- Adjustable reversing duration for safety-edge actuation



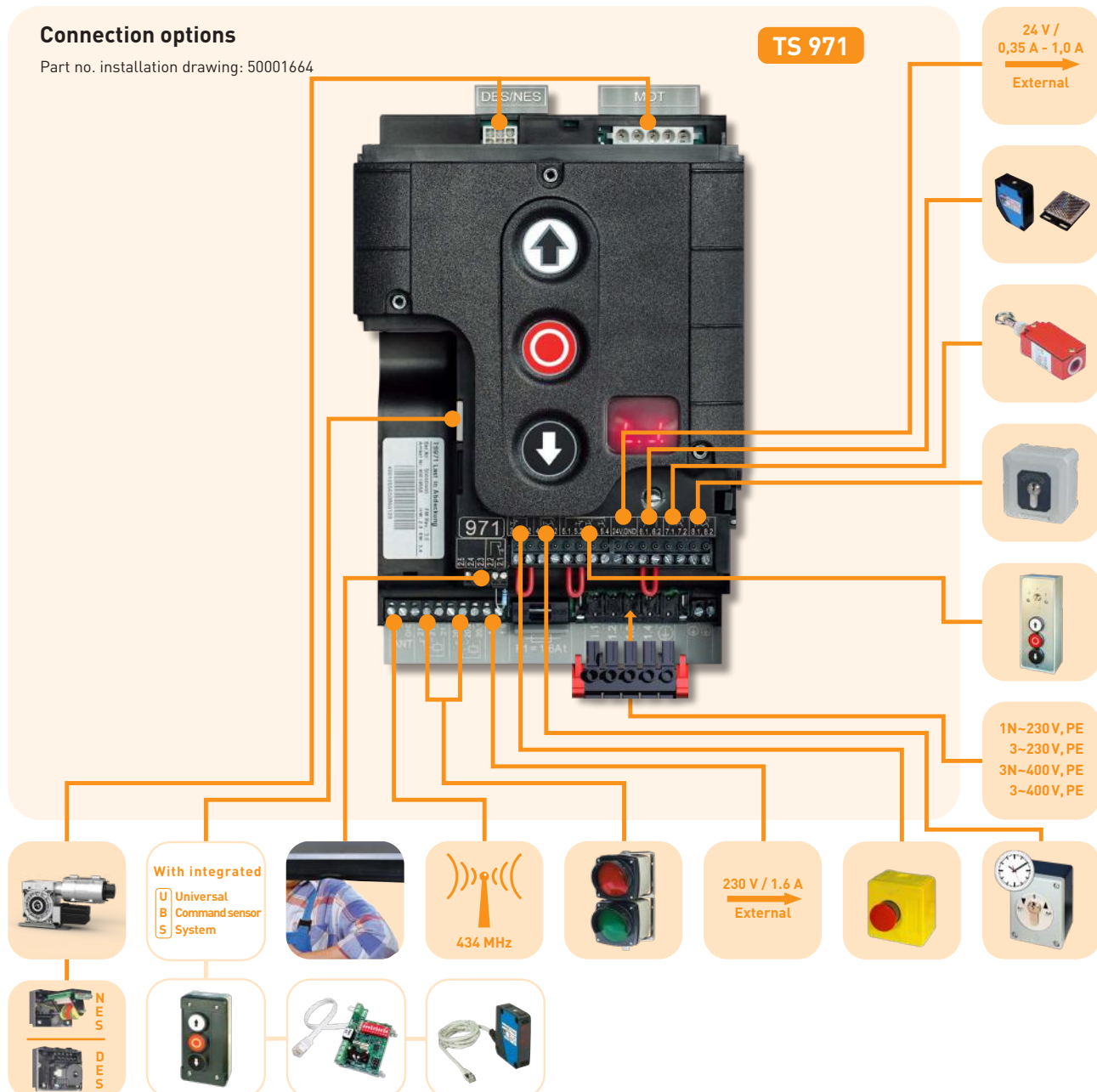
Further functions

- Automatic ground adjustment (only DES) to compensate for rope stretch or subsequent change in ground height (not for pressure-wave switches)
- Overrun correction (only DES) to compensate for changes to overrun, e.g. due to influence of temperature
- Status and information display (including display of 6 most-recent faults); extended evaluation by using optionally available GfA-Stick (see 8.075)
- Cycle counter (non-resettable)
- Maintenance-cycle counter:
 - Setting range: 1,000 - 99,000 cycles
 - Display indication or switch to hold-to-run operation once the maintenance-cycle limit is reached
- Detects door / drive blockage (only DES); in this event the control deactivates the drive unit
- Dynamic run time monitoring (only NES):
 - With every door movement, the time taken to run between the end positions is measured and compared with the most-recently set reference duration
- If the run duration is increased (pre-settable deviation), the control panel is deactivated
- Adjustable force monitoring in OPEN direction (only DES):
 - For counterbalanced doors, sudden changes to the counter-balancing are detected
 - Self-learning feature and consequently no activation of force monitoring function due to, e.g., a change in spring tension
- Automatic detection of ELEKTROMATEN unit with direct inverter (DI) or frequency inverter (FI):
 - Setting of output speed
 - Soft start and soft stop through automatic adjustment of acceleration and braking ramps
 - Possible to modify acceleration and braking ramps

Connection options

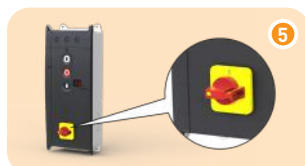
Part no. installation drawing: 50001664

TS 971



Complete door control with connection kit

new

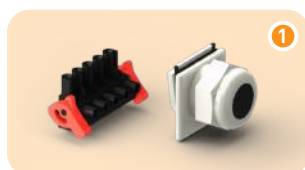


Designation	Description	External 24 V 350 mA DC Part no.	External 24 V 1000 mA DC Part no.
TS 971 with connection kit, when hardwired	1 With mains supply terminal and slide gland	20097100.00001	20197100.30001
TS 971 with CEE 3N~400 V (5-pole)	2 With pluggable mains supply cable of length 0.7 m	20097100.00002	20197100.30002
TS 971 with CEE 1N~230 V (3-pole)	3 With pluggable mains supply cable of length 0.7 m	20097100.00006	20197100.30006
TS 971 with CEE 1N~230 V asym. (3-pole)	3 For SI 25.15 WS / SI 45.7 WS / ST 16.24 WS; with pluggable mains supply cable of length 0.7 m	20097100.00014	20197100.30014
TS 971 with CEE 3~230 V (4-pole)	3 With pluggable mains supply cable of length 0.7 m	20097100.00017	20197100.30017
Adapter for 3~230 V power grids	4 For the connection of single-phase ELEKTROMATEN FI at 3~230 V power grids	30005855	30005855
TS 971 with mains switch/isolator 3N~400 V	5 With mains switch/isolator in large cover	20097100.00021	20197100.30021
TS 971 with mains switch/isolator 1N~230 V	5 With mains switch/isolator in large cover	20097100.00026	20197100.30026

Designation	Description	Part no.
TS 971-XL in plastic housing	WxHxD [mm]: 300x400x132 [165]; Protection class: IP65 - Slide gland for pluggable connection cable running to ELEKTROMATEN drives - 3 DIN mounting rails - 6 x M20 cable glands	
Part no. installation drawing: 50001908	6 Version with mains switch 3N~400 V [24 V 350 m DC] 6 Version with mains switch 3N~400 V [24 V 1000 mA DC] 7 Version when hardwired 230 V~400 V [24 V 350 mA DC]	20097100.20021 20197100.40021 20097100.20001
	8 Lock for padlock (2 pc)	40019408
TS 971 in stainless steel control enclosure ¹⁾	9 WxHxD [mm]: 400x400x200; Protection class: IP66 - 4-pole mains switch - 3 DIN mounting rails - 8 cable glands Version AISI 304L (V2A) Version AISI 316L (V4A) Rod aerial ANT3 ²⁾ with 3m coax cable	20097199.00001 20097199.00002 40000351

1) Using the WSD system of TS 971 is not possible
2) Required when using the integrated 434 MHz radio system

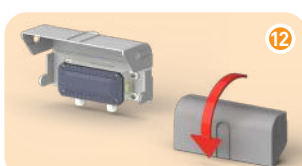
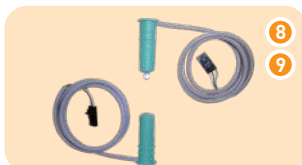
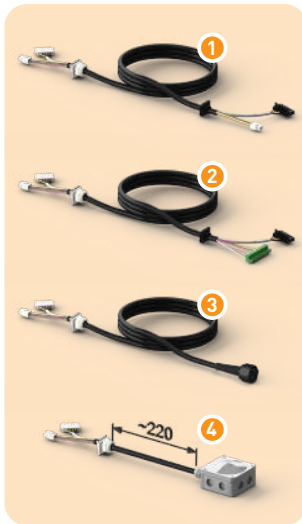
Separate connection kits



Designation	Description	Part no.
Connection kit, when hardwired	1 Mains supply terminal and slide gland	30005132.00001
Connection kit CEE 3N~400 V (5-pole.)	2 With pluggable mains supply cable of length 0.7 m	30005132.00002
Connection kit CEE 3N~400 V, IP65 (5-pole)	3 With pluggable mains supply cable of length 0.7 m	30005132.00004
Connection kit CEE 1N~230 V (3-pole)	4 With pluggable mains supply cable of length 0.7 m;	30005132.00006
Connection kit CEE 1N~230 V asym. (3-pole)	4 For SI 25.15 WS / SI 45.7 WS / ST 16.24 WS; with pluggable mains supply cable of length 0.7 m	30005132.00014
Connection kit CEE 3~230 V (4-pole)	4 With pluggable mains supply cable of length 0.7 m	30005132.00017
Adapter for 3~230 V power grids	5 For the connection of single-phase ELEKTROMATEN FI at 3~230 V power grids	30005855
Mains switch/isolator with connection kit 3N~400 V	6 Assembly kit for mains switch/isolator (complete)	30005132.00021
Mains switch/isolator with connection kit 1N~230 V	6 Assembly kit for mains switch/isolator (complete)	30005132.00026



Accessories



Designation	Description	Part no.
DES connection cable	1 Connection to ELEKTROMATEN drives with digital limit switch, pluggable on both sides; length of cable ¹⁾ : 3 m 5 m 7 m 9 m 11 m 13 m 15 m	20002420.00300 20002420.00500 20002420.00700 20002420.00900 20002420.01100 20002420.01300 20002420.01500
NES connection cable	2 Connection to ELEKTROMATEN drives with mechanical limit switch, pluggable on both sides; length of cable ¹⁾ : 3 m 5 m 7 m 9 m 11 m 13 m 15 m	20002320.00300 20002320.00500 20002320.00700 20002320.00900 20002320.01100 20002320.01300 20002320.01500
XES connection cable	3 Connection to ELEKTROMATEN SE 8.60 FI, pluggable on both sides; length of cable ¹⁾ : 3 m 5 m 7 m 9 m 11 m 13 m 15 m	20003673.00300 20003673.00500 20003673.00700 20003673.00900 20003673.01100 20003673.01300 20003673.01500
Connection set TS / clamp	4 Connection of the ELEKTROMATEN using the terminals in the box; use, for example, for routing the connection cable through the wall; Length of cable: 0.22 m	30005728
WSD (with battery ²⁾)	5 Wireless safety device (2,4 GHz), IP65 (receiver integrated in TS 971) - Evaluation for common safety-edge systems and for pass-door and slack-rope switches - Pluggable connection technology - Wide operating range - Can be combined with OSE system 1 or 2	30005154
Battery ²⁾ for WSD	6 Replacement, suitable for WSD (3.6 V) 1 pc 10 pc 40 pc	40017039 40017079 40017040
Spiral cable with junction box (IP65)	7 Straight cable ends (2 m / 0.35 m); length of coiled cable: 0.9 m; max. stretched length: 4 m - For OSE (optical safety edge system, e.g. Vitector system) - Can be combined with OSE system 1 or 2	20002620.00001
Universal OSE set, for system 1	8 System 1 = one junction box (with WSD or spiral cable); transmitter + receiver, pluggable design with receiver (0.5 m long cable) and transmitter with 6.5 m cable 10.5 m cable Are also required for system 1: 5 or 7	30005185.00650 30005185.01050
Universal OSE set, for system 2	9 System 2 = junction box (with WSD or spiral cable) + junction end box; transmitter + receiver, pluggable designs with 0.5 m long cables for each Are also required for system 2: 5 or 7 as well as 10+11	30005185.00060
Junction end box (IP65) for system 2	10 With plug-in connection points for transmitter / receiver, as well as for pass-door and slack-rope switches	30004834
Connection cable for system 2	11 Pluggable on both sides, 5-wire, cable length: 4.5 m 6.5 m 8.5 m 10.5 m	20002630.00450 20002630.00650 20002630.00850 20002630.01050
Splash guard	12 Mechanical protection against water; For WSD 5 , spiral cable with junction box 7 and junction end box 10	40017478.00001

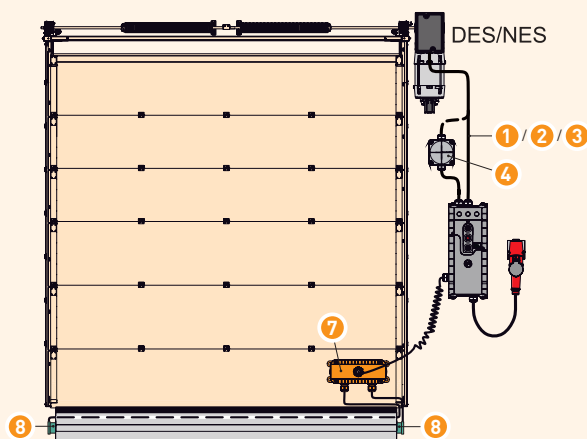
■ Visual overview on page 8.075

■ Further accessories are described in Section 9, e.g. radio from page 9.023

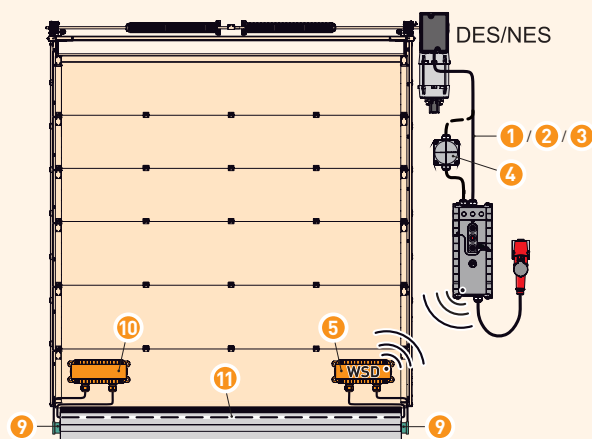
■ **1)** Further lengths available, upon request

■ **2)** Average service life of 1.5 years, approx.

Example with spiral cable and system 1



Example with WSD and system 2

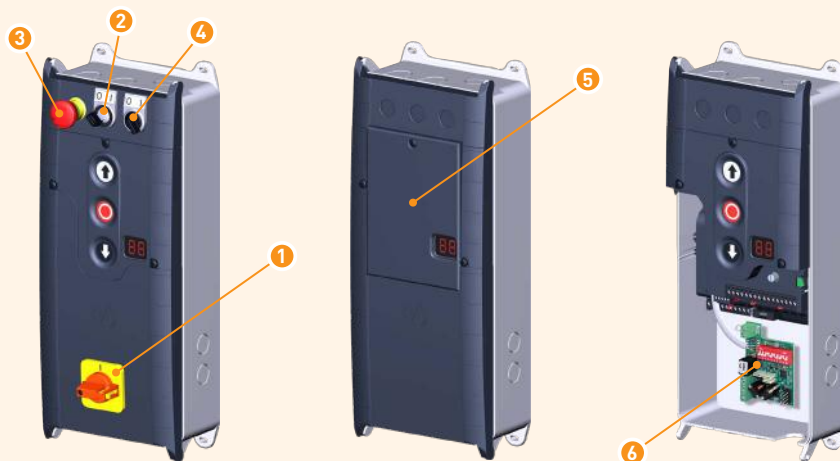


Accessories



Designation	Description	Part no.
Mains switch/isolator with connection kit	1 See "Separate connection kits" on page 8.073	
Key switch	2 Assembly kit for installation in small cover, supplied with 2 keys	30004616
Emergency STOP switch	3 Assembly kit for installation in small cover	30004615
Toggle switch for intermediate open position	4 Assembly kit for installation in small cover	30004679
Keypad cover	5 For preventing unintentional pressing of keypad buttons (e.g. for use in underground car parks), increased protection against direct contact with water	40017317.00001
Loop detector, two-channel	6 Snap-in system (with UBS module)	40017122
GfA-Stick	7 For use with smartphone or tablet PC together with the "GfA+" App; for reading out and displaying of important data from the door control (e.g. programming, stored error logs, etc.)	20003696

Arrangement



Spare parts TS 971



Designation	Description	Part no.
TS 971 board (24 V 350 mA DC) TS 971 board (24 V 1000 mA DC)	1 Within cover incl. keyboard	30005070.00001 30005070.00012
Bottom section of housing TS-B	2 For installation of the TS-board	40019858
Cover kit TS-B1	3+4+6 Consists of: small cover, large cover	30005192.00001
Cover kit TS-B1 for mains switch	3+5+6 Consists of: small cover, large cover, prepared for mains switch	30005192.00006
Spacer foot TS-B	6 4 pc	40016530

Spare parts TS 971-XL



Designation	Description	Part no.
Mounting kit for housing XL	1 4 pc	40017128
Membrane push button for TS-B	2 With viewing window	30005408
Hinge	3 2 pc	30005828
Top section of housing XL for TS-B	2+3+4 Consists of: Membrane push button for TS-B, hinges, cover	30005827.00001
Housing XL for TS-B	3+4+5 Consists of: Hinges, cover, bottom section with mounting plate and 3 DIN mounting rails	30005126
TS 971 board	6 Within cover incl. keyboard	30005070.00001
Mounting adapter TS-B	7 For installation of the TS-board	40019861
Connection kit, when hardwired	8+9 Consists of: Mains supply terminal and slide gland	30005132.00001
TS 971 for control enclosure installation	6+7+8 Consists of: TS 971 board, mounting adapter TS-B, mains supply terminal	30005406
Mains switch for housing XL	10 4-pole	40015183
Housing XL for TS-B with mains switch, complete	1+2+3+4+5+7+10 Consists of: Mounting kit for housing XL, Membrane push button for TS-B, Housing XL for TS-B, Mounting adapter TS-B, mains switch for housing XL	20002984.20005
Lock for padlock	11 2 pc (without padlock)	40019408