TS 971 door control
"Integrated radio"

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

TS 971

Approvals and certificates

TS 971

Type test according to:
DIN EN 12453
DIN EN 12978
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~230V, PE / 3~230V, PE / 3N~400V, PE / 3~400V, PE
- Operating frequency: 50 / 60 Hz
- Control voltage: 24V DC
- Mains supply ratings for external devices: 24V DC (0.35A) / 230V AC (1.6A)
- Permissible temperature range: -10°...+50°C

Housing
- Dimensions W x H x D [mm]: 155 x 386 x 90 (117 [1])
- IP65 rated when hard wired or IP54 if CEE plug used
- Protection against contact provided by covers for live parts
- Top and botton 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 (WSD [2]) 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
- UBS [3] module with 2 plug-in points 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 **W**ireless **S**afety **D**evice
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)
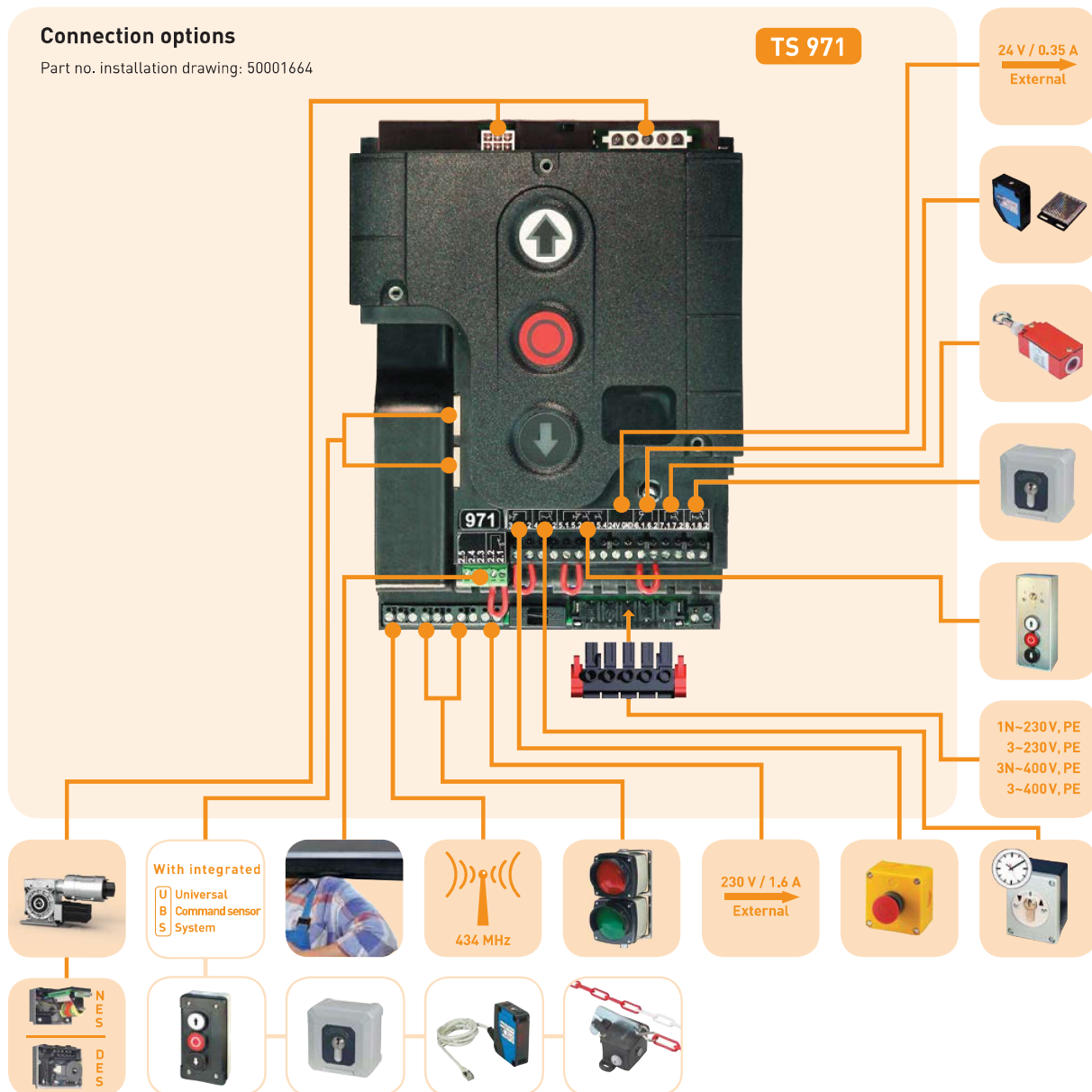- Adjustable reversing duration for safety-edge actuation
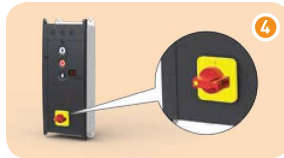
Further functions

- 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 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
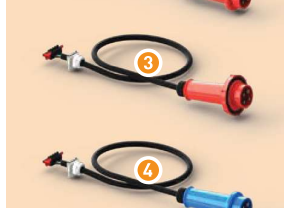
Connection options

Part no. installation drawing: 50001664

TS 971

24 V / 0.35 A
External

1N~230 V, PE
3~230 V, PE
3N~400 V, PE
3~400 V, PE

With integrated
U Universal
B Command sensor
S System

434 MHz

230 V / 1.6 A
External

N E S

D E S

8.072

Subject to alterations. [18_Pk]

Complete door control with connection kit

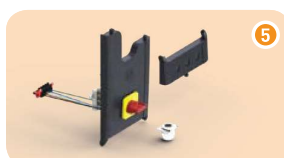| Designation		Description	Part no.
TS 971 with connection kit, when hardwired	❶	With mains supply terminal and slide gland	20097100.00001
TS 971 with CEE 3N~400V (5-pole)	❷	With pluggable mains supply cable of length 0.7m	20097100.00002
TS 971 with CEE 1N~230V (3-pole)	❸	With pluggable mains supply cable of length 0.7m	20097100.00006
TS 971 with CEE 1N~230V asym. (3-pole)	❸	For SI 25.15 WS / SI 45.7 WS / ST 16.24 WS; with pluggable mains supply cable of length 0.7m	20097100.00014
TS 971 with CEE 3~230V (4-pole)	❸	With pluggable mains supply cable of length 0.7m	20097100.00017
TS 971 with mains switch / isolator 3N~400V	❹	With mains switch / isolator in large cover	20097100.00021
TS 971 with mains switch / isolator 1N~230V	❹	With mains switch / isolator in large cover	20097100.00026

Designation		Description	Part no.
TS 971-XL in plastic housing Part no. installation drawing: 50001908	❺ ❻ ❼	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 Version with mains switch 3N~400V Version when hardwired 230–400V Lock for padlock (2 pc.)	 20097100.20021 20097100.20001 40019408

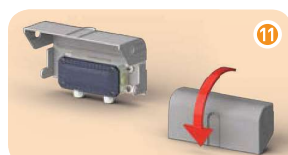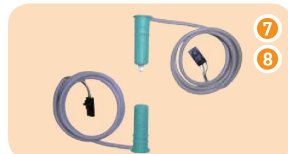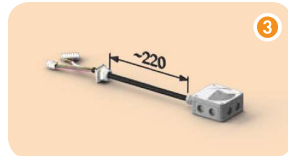| Designation		Description	Part no.
TS 971 in stainless steel control enclosure[1] (For areas with high demands on hygiene or corrosion protection)	❻ ❼	W x H x D [mm]: 400x400x200; Protection class: IP66 – 4-pole mains switch – 3 DIN mounting rails – 8 cable glands Version AISI 304L (V2A) Version AISI 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

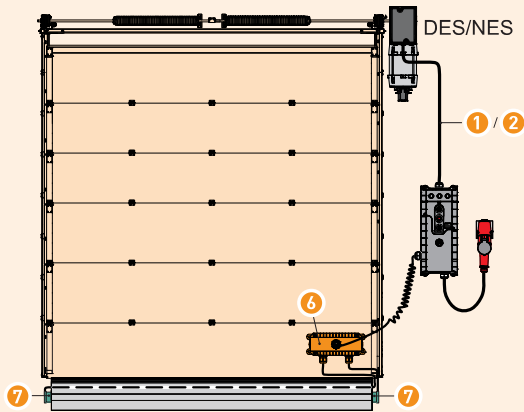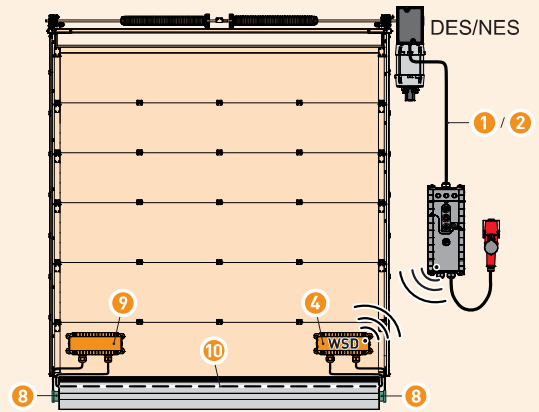| Designation		Description	Part no.
Connection kit, when hardwired	❶	Mains supply terminal and slide gland	30005132.00001
Connection kit CEE 3N~400V (5-pole.)	❷	With pluggable mains supply cable of length 0.7m	30005132.00002
Connection kit CEE 3N~400V, IP65 (5-pole)	❸	With pluggable mains supply cable of length 0.7m	30005132.00004
Connection kit CEE 1N~230V (3-pole)	❹	With pluggable mains supply cable of length 0.7m;	30005132.00006
Connection kit CEE 1N~230V asym. (3-pole)	❹	For SI 25.15 WS / SI 45.7 WS / ST 16.24 WS; with pluggable mains supply cable of length 0.7m	30005132.00014
Connection kit CEE 3~230V (4-pole)	❹	With pluggable mains supply cable of length 0.7m	30005132.00017
Mains switch / isolator with connection kit 3N~400V	❺	Assembly kit for mains switch / isolator (complete)	30005132.00021
Mains switch / isolator with connection kit 1N~230V	❺	Assembly kit for mains switch / isolator (complete)	30005132.00026

Designation		Description	Part no.
DES connection cable	❶	Connection to ELEKTROMATEN drives with digital limit switch, pluggable on both sides; length of cable:	
		3,0m	20002420.00300
		5,0m	20002420.00500
		7,0m	20002420.00700
		9,0m	20002420.00900
		11,0m	20002420.01100
		13,0m	20002420.01300
		15,0m	20002420.01500
		Further lengths available, upon request	
NES connection cable	❷	Connection to ELEKTROMATEN drives with mechanical limit switch, pluggable on both sides; length of cable:	
		3,0m	20002320.00300
		5,0m	20002320.00500
		7,0m	20002320.00700
		9,0m	20002320.00900
		11,0m	20002320.01100
		13,0m	20002320.01300
		15,0m	20002320.01500
		Further lengths available, upon request	
Connection set TS / clamp	❸	Connection of the ELEKTROMATEN using the terminals in the box; use, for example, for routing the connection cable through the wall; Length of cable: 0,22m	30005728
WSD (with battery [1])	❹	Wireless safety device (2,4 GHz), IP65 (receiver integrated in TS 971) – Evaluation for common safety-edge systems and for for pass-door and slack-rope switches – Pluggable connection technology – Wide operating range – Can be combined with OSE system 1 or 2 [1] Average service life of 1.5 years, approx.	30005154
Battery for WSD	❺	Replacement, suitable for WSD (3.6 V)	
		1 pc.	40017039
		10 pc.	40017079
		40 pc.	40017040
Spiral cable with junction box (IP65)	❻	Straight cable ends (2.0m/0.35m); length of coiled cable: 0.9m; max. stretched length: 4.0m – 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	❼	System 1 = one junction box (with WSD or spiral cable); transmitter + receiver, pluggable design with receiver (0.5m long cable) and transmitter with	
		6.5m cable	30005185.00650
		10.5m cable	30005185.01050
		Are also required for system 1: ❹ or ❻	
Universal OSE set, for system 2	❽	System 2 = junction box (with WSD or spiral cable) + junction end box; transmitter + receiver, pluggable designs with 0.5m long cables for each Are also required for system 2: ❹ or ❻ as well as ❾+❿	30005185.00060
Junction end box (IP65) for system 2	❾	With plug-in connection points for transmitter / receiver, as well as for pass-door and slack-rope switches	30004834
Connection cable for system 2	❿	Pluggable on both sides, 5-wire, cable length:	
		4.5m	20002630.00450
		6.5m	20002630.00650
		8.5m	20002630.00850
		10.5m	20002630.01050
Splash guard	⓫	Mechanical protection against water; For WSD ❹, spiral cable with junction box ❻ and junction end box ❾	40017478.00001

■ Visual overview on page 8.075　　■ Further accessories are described in Section 9, e.g. radio from page 9.023

Subject to alterations. [18_Pk]

Example with spiral cable and system 1

DES/NES

❶ / ❷

❻

❼   ❼

Example with WSD and system 2

DES/NES

❶ / ❷

❾   ❹

❿

❽   WSD   ❽

Accessories

Designation		Description	Part no.
Mains switch/isolator with connection kit	❶	See "Separate connection kits" on page 8.073	
Key switch	❷	Assembly kit for installation in small cover, supplied with 2 keys	30004616
Emergency-stop switch	❸	Assembly kit for installation in small cover	30004615
Toggle switch for intermediate open position	❹	Assembly kit for installation in small cover	30004679
Keypad cover	❺	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	❻	Snap-in system (with UBS module)	40017122
GfA-Stick	❼	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

❶ ❷ ❸ ❹ ❺ ❻ ❼

Arrangement

❸ ❷ ❹

❶

❺

❻
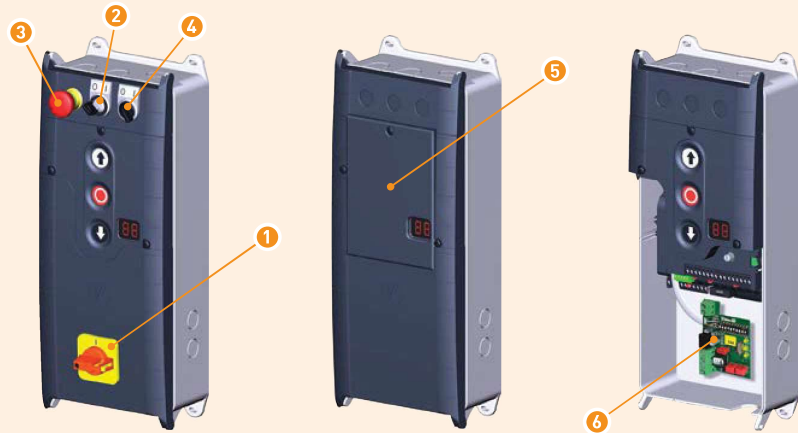
Spare parts TS 971

Designation		Description	Part no.
TS 971 board	1	Within cover incl. keyboard	30005070.00001
Bottom section of housing TS-B	2	For installation of the TS-board	40016517
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
Membran push button for TS-B	2	With viewing window	30005408
Hing	3	2 pc.	30005828
Top section of housing XL for TS-B	2+3+4	Consists of: Membran push button for TS-B, hing, cover	30005827.00001
Housing XL for TS-B	3+4+5	Consits of: Hing, 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	40019370
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	Consits of: Mounting kit for housing XL, Membran 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