

TS 970 door control

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

Approvals and certificates

TS 970

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 970 – Automatic control panel for DES / NES limit switches

Technical data

- For all 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 (0.18A) / 230V AC (1.6A)
- Permissible temperature range: -10°...+50°C

Housing

- Dimensions W x H x D [mm]: 155 x 386 x 90 (117¹)
- 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
- 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
- Independent, programmable relay contact, e.g. usable for red or green traffic-lights or dock-leveller enabling
- UBS² 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

Accessories

- Mains switch/isolator
- Emergency-stop switch
- Key switch
- For description and details on further accessories, see 8.069

¹ Version with mains switch

² UBS universal command sensor system (see 8.091)

TS 970



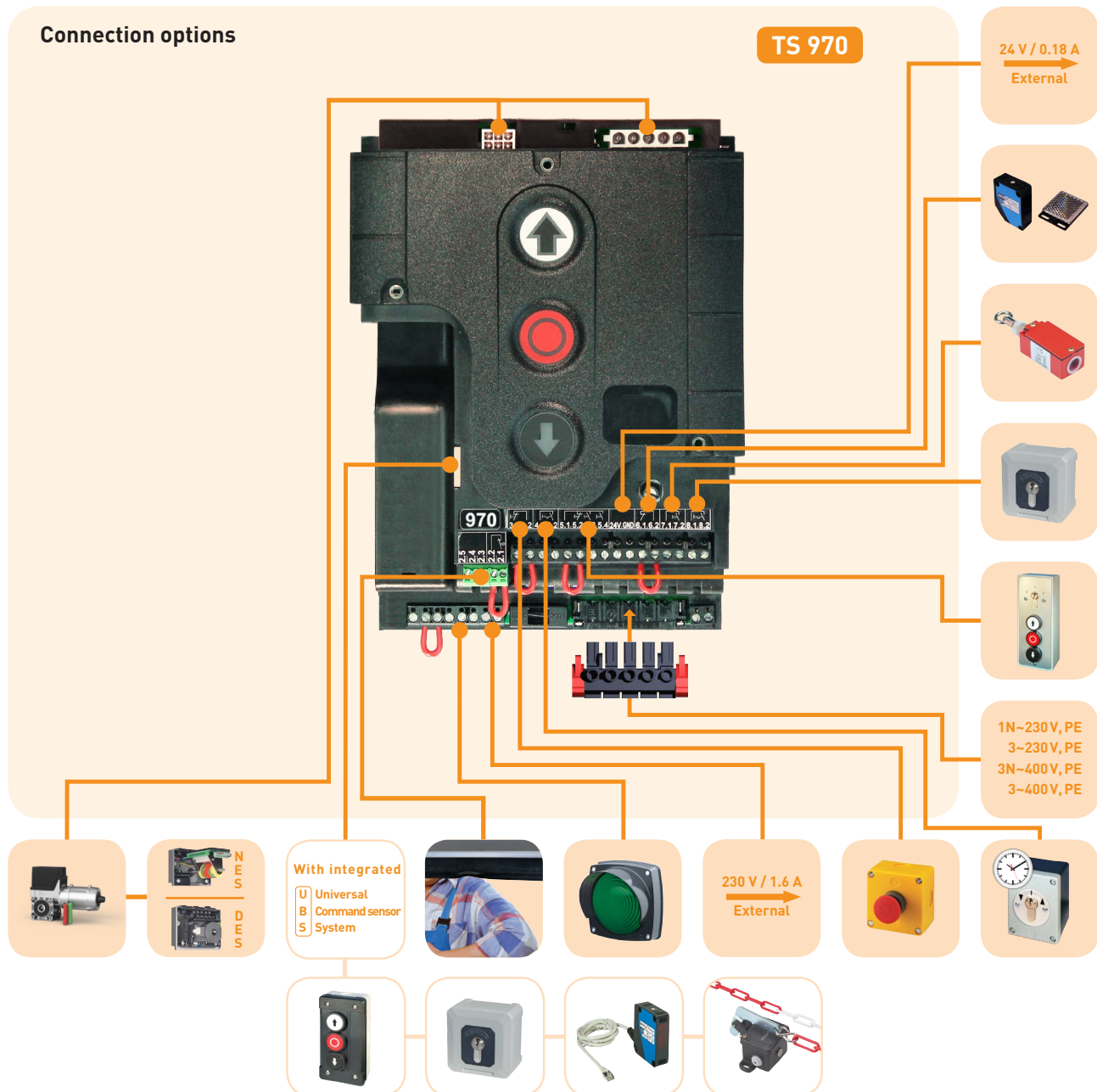
Functions

- Automatic detection of DES or NES limit switches
- Change of rotating direction from control panel
- 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

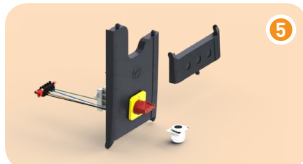
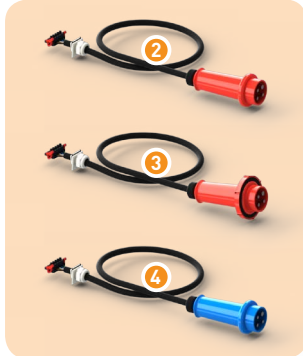
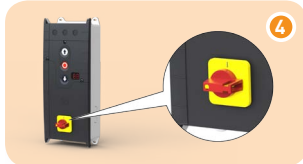
Further functions

- 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); extensive evaluation via optionally-available service kit (adaptor + software, see 8.069)
- 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



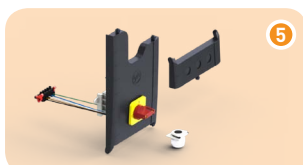
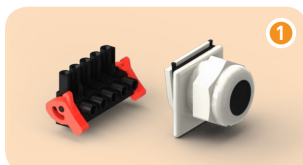
Complete door control with connection kit



Designation	Description	Part no.
TS 970 with connection kit, when hardwired	1 With mains supply terminal and slide gland	20197000.00001
TS 970 with CEE 3N-400V (5-pin)	2 With pluggable mains supply cable of length 0.7m	20197000.00002
TS 970 with CEE 1N-230V (3-pin)	3 With pluggable mains supply cable of length 0.7m	20197000.00006
TS 970 with CEE 1N-230V asym. (3-pin)	3 For SI 25.15 WS / SI 45.7 WS / ST 16.24 WS; with pluggable mains supply cable of length 0.7 m	20197000.00014
TS 970 with CEE 3-230V (4-pin)	3 With pluggable mains supply cable of length 0.7m	20197000.00017
TS 970 with mains switch/isolator 3N-400V	4 With mains switch/isolator in large cover	20197000.00021
TS 970 with mains switch/isolator 1N-230V	4 With mains switch/isolator in large cover	20197000.00026

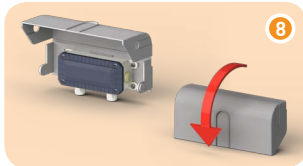
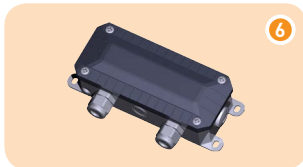
Designation	Description	Part no.
TS 970-XL with mains switch/isolator 3N-400V	5 Suitable for additional equipment W x H x D [mm]: 300 x 400 x 132 (165) Protection class: IP65 - Slide gland for pluggable connection cable running to ELEKTROMATEN drives - 4-pin mains switch - DIN mounting rail - 6 x M20 cable glands	20197000.20021

Separate connection kits



Designation	Description	Part no.
Connection kit, when hardwired	1 Mains supply terminal and slide gland	30005132.00001
Connection kit CEE 3N-400V (5-pin.)	2 With pluggable mains supply cable of length 0.7m	30005132.00002
Connection kit CEE 3N-400V, IP65 (5-pin)	3 With pluggable mains supply cable of length 0.7m	30005132.00004
Connection kit CEE 1N-230V (3-pin)	4 With pluggable mains supply cable of length 0.7m;	30005132.00006
Connection kit CEE 1N-230V asym. (3-pin)	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 3-230V (4-pin)	4 With pluggable mains supply cable of length 0.7m	30005132.00017
Mains switch/isolator with connection kit 3N-400V	5 Assembly kit for mains switch/isolator (complete)	30005132.00021
Mains switch/isolator with connection kit 1N-230V	5 Assembly kit for mains switch/isolator (complete)	30005132.00026

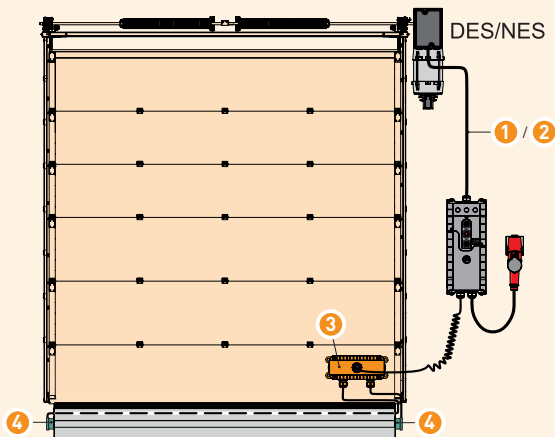
Accessories



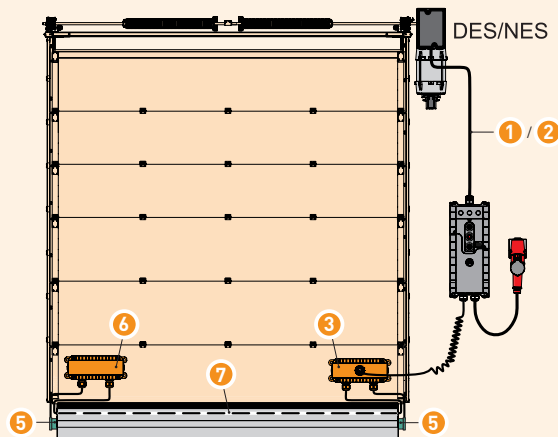
Designation	Description	Part no.
DES connection cable	1 Connection to ELEKTROMATEN drives with digital limit switch, pluggable on both sides; length of cable: 3,0m 5,0m 7,0m 9,0m 11,0m 13,0m 15,0m Further lengths available, upon request	20002420.00300 20002420.00500 20002420.00700 20002420.00900 20002420.01100 20002420.01300 20002420.01500
NES connection cable	2 Connection to ELEKTROMATEN drives with mechanical limit switch, pluggable on both sides; length of cable: 3,0m 5,0m 7,0m 9,0m 11,0m 13,0m 15,0m Further lengths available, upon request	20002320.00300 20002320.00500 20002320.00700 20002320.00900 20002320.01100 20002320.01300 20002320.01500
Spiral cable with junction box (IP65)	3 Straight cable ends (2.0 m/0.35 m); length of coiled cable: 0.9 m; max. stretched length: 4.0 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	4 System 1 = one junction box; transmitter + receiver, pluggable design with receiver (0.5m long cable) and transmitter with 6.5m cable 10.5m cable	30005185.00650 30005185.01050
Universal OSE set, for system 2	5 System 2 = junction box + junction end box; transmitter + receiver, pluggable designs with 0.5m long cables for each Are also required for system 2: 6+7	30005185.00060
Junction end box (IP65) for system 2	6 With plug-in connection points for transmitter / receiver, as well as for pass-door and slack-rope switches	30004834
Connection cable for system 2	7 Pluggable on both sides, 5-wire, cable length: 4.5m 6.5m 8.5m 10.5m	20002630.00450 20002630.00650 20002630.00850 20002630.01050
Splash guard	8 Mechanical protection against water; For spiral cable with junction box 3 and junction end box 6	40017478.00001

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

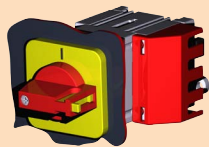
Example with system 1



Example with system 2



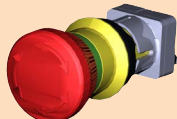
Accessories



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2



3



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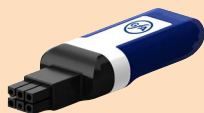
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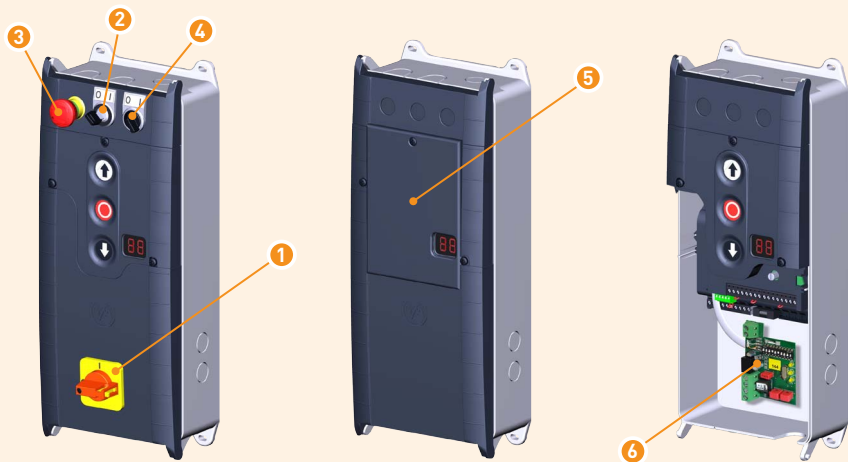
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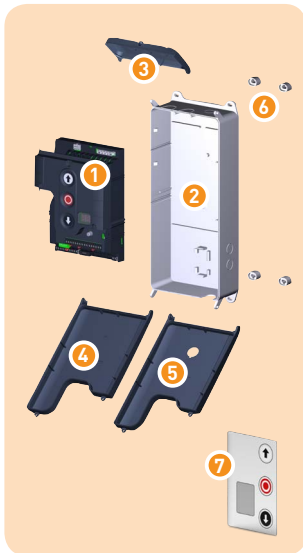
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Designation	Description	Part no.
Mains switch/isolator with connection kit	1 See "Separate connection kits" on page 8.067	
Key switch	2 Assembly kit for installation in small cover	30004616
Emergency-stop switch	3 Assembly kit for installation in small cover	30004615
Toggle switch for intermediate open position	4 Assembly kit for installation in small cover	300004679
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
Service program with adaptor	7 For installation on desktop PC or laptop; for reading out and displaying of important data from the door control (e.g. programming, stored error logs, etc.)	20003507
GfA-Stick	8 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



Designation	Description	Part no.
TS 970 board	① Within cover incl. keyboard	30005273.00001
Bottom section of housing TS-B	② For installation of the TS-board	40016517
Cover kit TS-B1	③+④ Consists of: small cover, large cover	30005192.00001
Cover kit TS-B1 for mains switch	③+⑤ Consists of: small cover, large cover, prepared for mains switch	30005192.00006
Spacer foot TS-B	⑥ 4 pcs.	40016530
Membran push button for TS 970-XL	⑦ With viewing window	30005408