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

TS 971 – 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 [0.35A] / 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 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 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)

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
- 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

Technical data
For all GfA ELEKTROMATEN drives with DES or NES

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

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1. Version with mains switch
2. Wireless Safety Device
3. UBS universal command sensor system (see 8.091)
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 (adapter + software, 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
## Complete door control with connection kit

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS 971 with connection kit, when hardwired</td>
<td>With mains supply terminal and slide gland</td>
<td>20097100.00001</td>
</tr>
<tr>
<td>TS 971 with CEE 3N–400V [5-pin]</td>
<td>With pluggable mains supply cable of length 0.7m</td>
<td>20097100.00002</td>
</tr>
<tr>
<td>TS 971 with CEE 1N–230V [3-pin]</td>
<td>With pluggable mains supply cable of length 0.7m</td>
<td>20097100.00006</td>
</tr>
<tr>
<td>TS 971 with CEE 1N–230V asym. (3-pin)</td>
<td>For SI 25.15 WS / SI 45.7 WS / ST 16.24 WS; with pluggable mains supply cable of length 0.7 m</td>
<td>20097100.00014</td>
</tr>
<tr>
<td>TS 971 with CEE 3–230V (4-pin)</td>
<td>With pluggable mains supply cable of length 0.7m</td>
<td>20097100.00017</td>
</tr>
<tr>
<td>TS 971 with mains switch / isolator 3N–400V</td>
<td>With mains switch / isolator in large cover</td>
<td>20097100.00021</td>
</tr>
<tr>
<td>TS 971 with mains switch / isolator 1N–230V</td>
<td>With mains switch / isolator in large cover</td>
<td>20097100.00026</td>
</tr>
</tbody>
</table>

### Separate connection kits

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS 971-XL with mains switch / isolator 3N–400V</td>
<td>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</td>
<td>20097100.20021</td>
</tr>
</tbody>
</table>

Subject to alterations. (15_Li)
### Accessories

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
<th>Part no.</th>
</tr>
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<tbody>
<tr>
<td>DES connection cable</td>
<td>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</td>
<td>20002420.00300, 20002420.00500, 20002420.00700, 20002420.00900, 20002420.01100, 20002420.01300, 20002420.01500</td>
</tr>
<tr>
<td>NES connection cable</td>
<td>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</td>
<td>20002320.00300, 20002320.00500, 20002320.00700, 20002320.00900, 20002320.01100, 20002320.01300, 20002320.01500</td>
</tr>
<tr>
<td>WSD (with battery 1)</td>
<td>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</td>
<td>30005154</td>
</tr>
<tr>
<td>Battery for WSD</td>
<td>Replacement, suitable for WSD (3.6 V) 1 pc., 10 pc., 40 pc.</td>
<td>40017039, 40017079, 40017040</td>
</tr>
<tr>
<td>Spiral cable with junction box (IP25)</td>
<td>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. Vlktor system) - Can be combined with OSE system 1 or 2</td>
<td>20002620.00001</td>
</tr>
<tr>
<td>Universal OSE set, for system 1</td>
<td>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 10.5m cable</td>
<td>30005185.00650, 30005185.01050</td>
</tr>
<tr>
<td>Universal OSE set, for system 2</td>
<td>System 2 = junction box (with WSD or spiral cable) + junction end box; transmitter + receiver, pluggable designs with 0.5m long cables for each 30005185.00060</td>
<td></td>
</tr>
<tr>
<td>Junction end box (IP25) for system 2</td>
<td>With plug-in connection points for transmitter / receiver, as well as for pass-door and slack-rope switches</td>
<td>30004834</td>
</tr>
<tr>
<td>Connection cable for system 2</td>
<td>Pluggable on both sides, 5-wire, cable length: 4.5m, 6.5m, 8.5m, 10.5m</td>
<td>20002630.00450, 20002630.00650, 20002630.00850, 20002630.01050</td>
</tr>
<tr>
<td>Splash guard</td>
<td>Mechanical protection against water; For WSD 3 spiral cable with junction box 5 and junction end box 8</td>
<td>40017478.00001</td>
</tr>
</tbody>
</table>

1 Visual overview on page 8.075

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

Subject to alterations. (15_Li)
Subject to alterations. (15_Li)

Example with spiral cable and system 1

Example with WSD and system 2

**Accessories**

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<tr>
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<tbody>
<tr>
<td>Mains switch/isolator with connection kit</td>
<td>See &quot;Separate connection kits&quot; on page 8.073</td>
<td></td>
</tr>
<tr>
<td>Key switch</td>
<td>Assembly kit for installation in small cover</td>
<td>30004616</td>
</tr>
<tr>
<td>Emergency-stop switch</td>
<td>Assembly kit for installation in small cover</td>
<td>30004615</td>
</tr>
<tr>
<td>Toggle switch for intermediate open position</td>
<td>Assembly kit for installation in small cover</td>
<td>30004679</td>
</tr>
<tr>
<td>Keypad cover</td>
<td>For preventing unintentional pressing of keypad buttons (e.g. for use in underground car parks), increased protection against direct contact with water</td>
<td>40017317.00001</td>
</tr>
<tr>
<td>Loop detector, two-channel</td>
<td>Snap-in system (with UBS module)</td>
<td>40017122</td>
</tr>
<tr>
<td>Service program with adaptor</td>
<td>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.)</td>
<td>20003507</td>
</tr>
<tr>
<td>GfA-Stick</td>
<td>For use with smartphone or tablet PC together with the &quot;GfA+&quot; App; for reading out and displaying of important data from the door control (e.g. programming, stored error logs, etc.)</td>
<td>20003696</td>
</tr>
</tbody>
</table>

**Arrangement**

Subject to alterations. (15_Li)
<table>
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<tbody>
<tr>
<td>TS 971 board</td>
<td>Within cover incl. keyboard</td>
<td>30005070.00001</td>
</tr>
<tr>
<td>Bottom section of housing TS-B</td>
<td>For installation of the TS-board</td>
<td>40016517</td>
</tr>
<tr>
<td>Cover kit TS-B1</td>
<td>Consists of: small cover, large cover</td>
<td>30005192.00001</td>
</tr>
<tr>
<td>Cover kit TS-B1 for mains switch</td>
<td>Consists of: small cover, large cover, prepared for mains switch</td>
<td>30005192.00006</td>
</tr>
<tr>
<td>Spacer foot TS-B</td>
<td>4 pcs.</td>
<td>49016530</td>
</tr>
<tr>
<td>Membran push button for TS 971-XL</td>
<td>With viewing window</td>
<td>30005408</td>
</tr>
</tbody>
</table>