

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

TS 971



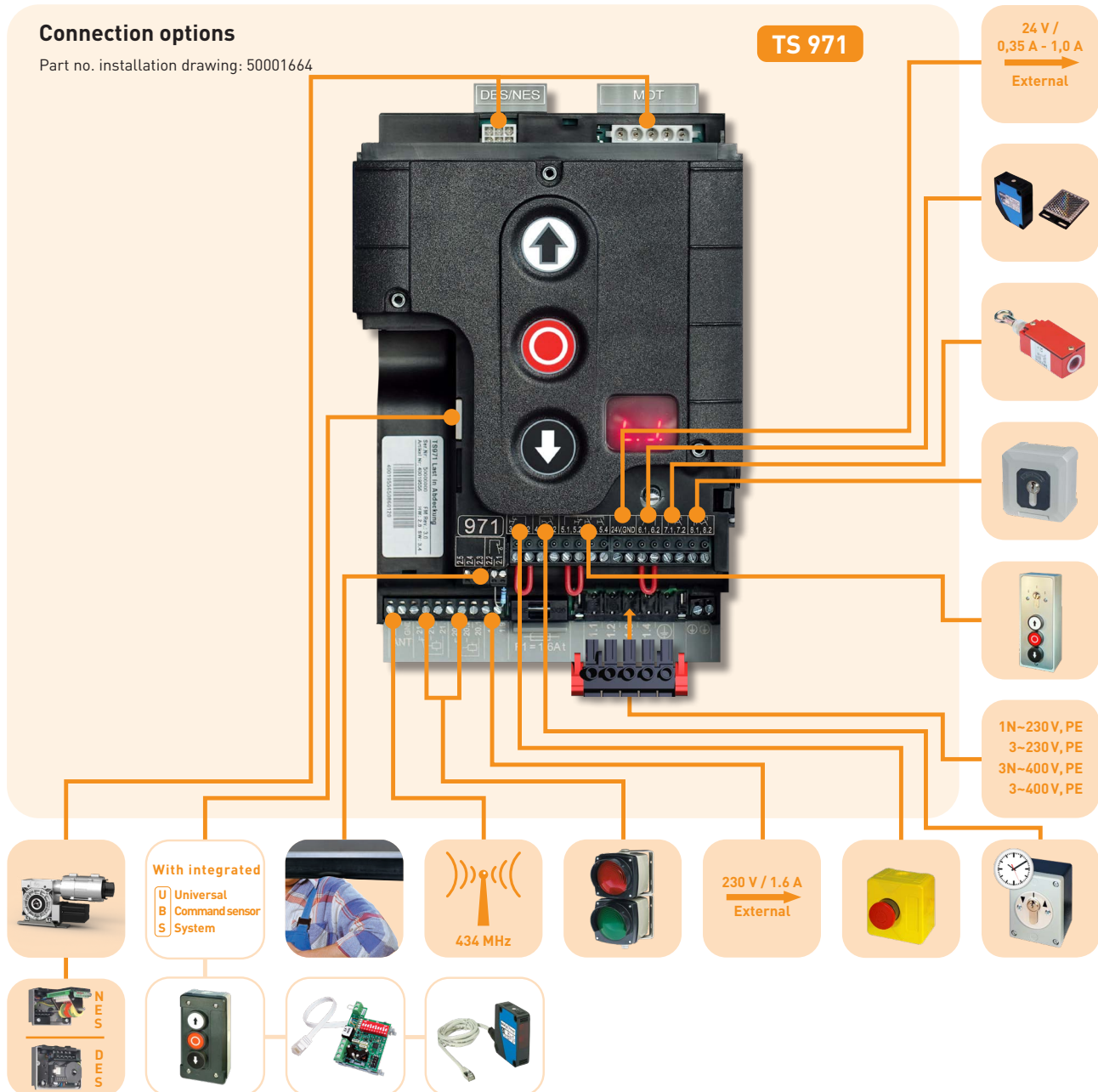
Further functions

- 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

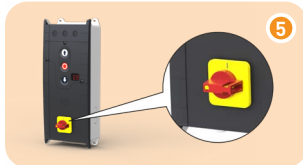
Part no. installation drawing: 50001664

TS 971



Complete door control with connection kit

new

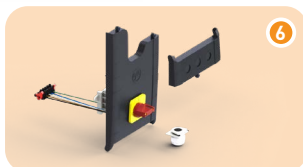
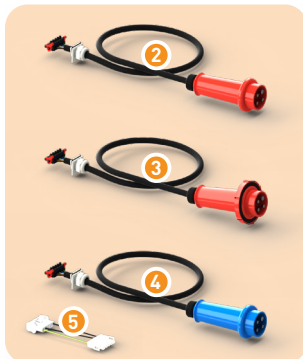
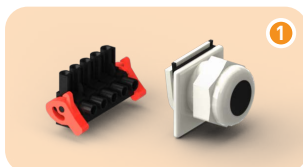


| Designation | Description | External 24 V 350 mA DC Part no. | External 24 V 1000 mA DC Part no. |
|--|---|----------------------------------|-----------------------------------|
| TS 971 with connection kit, when hardwired | 1 With mains supply terminal and slide gland | 20097100.00001 | 20197100.30001 |
| 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 | |
| (For areas with high demands on hygiene or corrosion protection) | 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

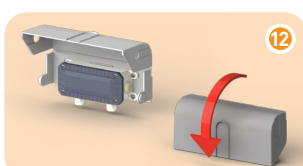
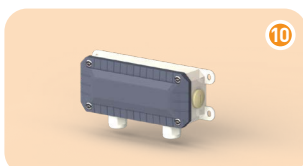
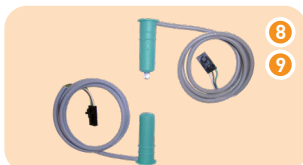
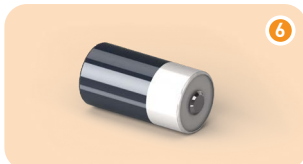
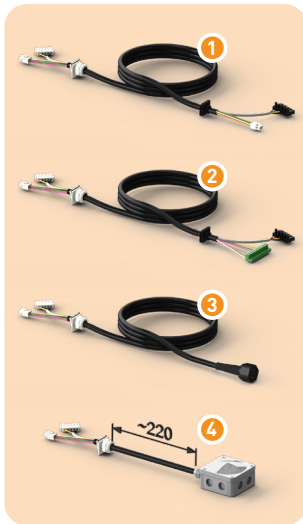
Separate connection kits



| 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 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 |

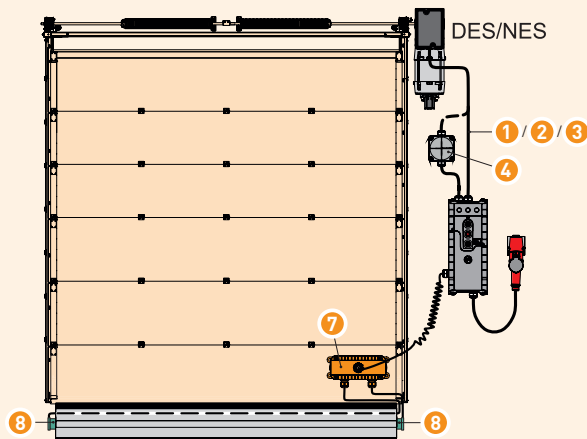
■ Visual overview on page 8.075

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

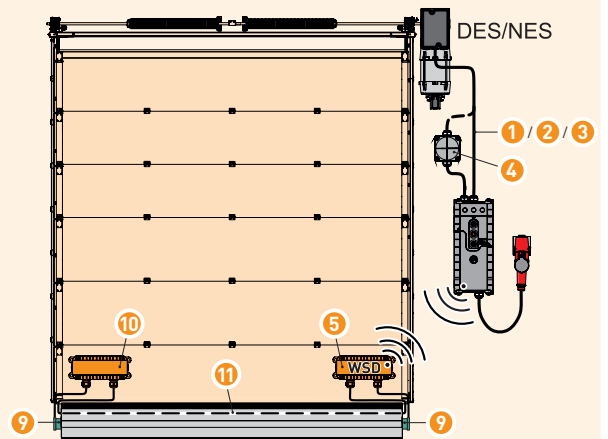
■ **1)** Further lengths available, upon request

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

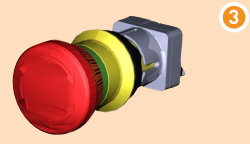
Example with spiral cable and system 1



Example with WSD and system 2

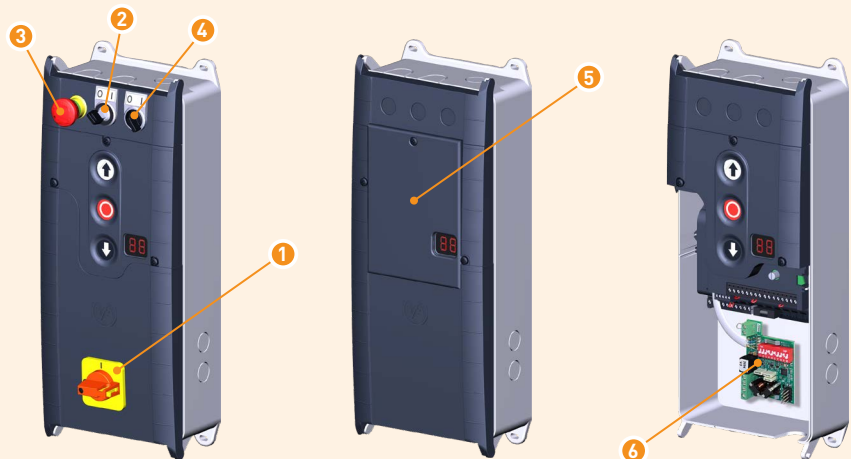


Accessories



| 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 |