



Electrical operating instructions

Door control panel TS 961

Software 2.6 (Design and functions subject to change)



OPERATING INSTRUCTIONS

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SAFETY DIRECTIONS

Basic Directions

This control has been built in accordance with **EN 12453 Industrial, commercial and garage doors and gates - Safety in use of power operated doors - Requirements**; and left the factory in perfect condition from the point of view of safety. To maintain this condition and to ensure safe operation, the user must observe all the directions and warnings contained in these operating instructions.

In principle, only trained electrical craftsmen should work on electrical equipment. They must assess the work which has been assigned to them, identify potential danger sources and take suitable safety precautions.

Reconstruction of or changes to ELEKTROMATEN® are only permissible with the approval of the manufacturer. Original replacement parts and accessories authorised by the manufacturer guarantee safety. Liability ceases to apply if other parts are used.

The operational safety of an ELEKTROMATEN® is only guaranteed if it is used in accordance with the regulations. The limiting values stated in the technical data should not be exceeded under any circumstances (see corresponding sections of the operating instructions).

Safety Regulations

During the installation, initial operation, maintenance and testing of the ELEKTROMATEN®, it is necessary to observe the safety and accident-prevention regulations valid for the specific application.

In particular, you should observe the following regulations (this list is not exhaustive):

European normativ

- EN 12453
Safety in use of power operated doors - Requirements
- EN 12445
Safety in use of power operated doors - Test methods

Please check normative´s bellow.

VDE-regulations

- EN 418
Safety machinery
Emergency stop equipment functional aspects
Principles for design
- EN 60204-1 / VDE 0113-1
Safety of machinery - Electrical equipment of machines - Part 1:
General requirements
- EN 60335-1 / VDE 0700-1
Safety of household and similar electrical appliances - Part 1:
General requirements



Regulations

- Please ensure that the local regulations relating to the Safety of Operations of Doors are followed

SAFETY DIRECTIONS

Explanation of warnings

These operating instructions contain directions which are important for using the ELEKTROMATEN® appropriately and safely.

The individual directions have the following meaning:



DANGER

This indicates danger to the life and health of the user if the appropriate precautions are not taken.



CAUTION

This warns that the ELEKTROMATEN® or other materials may be damaged if the appropriate precautions are not taken.

General warnings and safety precautions

The following warnings are to be understood as a general guideline for working with the ELEKTROMATEN® in conjunction with other devices. These directions must be observed strictly during installation and operation.



Check that all screw connections are secure before operating the control and adjusting the limit switches.



- Please observe the safety and accident prevention regulations valid for the specific application. The installation of the ELEKTROMATEN®, the opening of covers or lids and electrical connection must be carried out when the supply is switched off.
- The ELEKTROMATEN® must be installed with the authorised coverings and protective devices. Care should be taken that any seals are fitted correctly and screw couplings are tightened correctly.
- In the case of ELEKTROMATEN® with a permanent mains connection, an all-pole main switch with appropriate back-up fuse must be provided.
- Check live cables and conductors regularly for insulation faults or breakages. When a fault is detected in the cabling, the defective cabling should be replaced after immediately switching off the mains supply.
- Before starting operation, check whether the permissible mains voltage range of the devices corresponds to the local mains voltage.
- With three – phase motor connection it must have right phase rotation

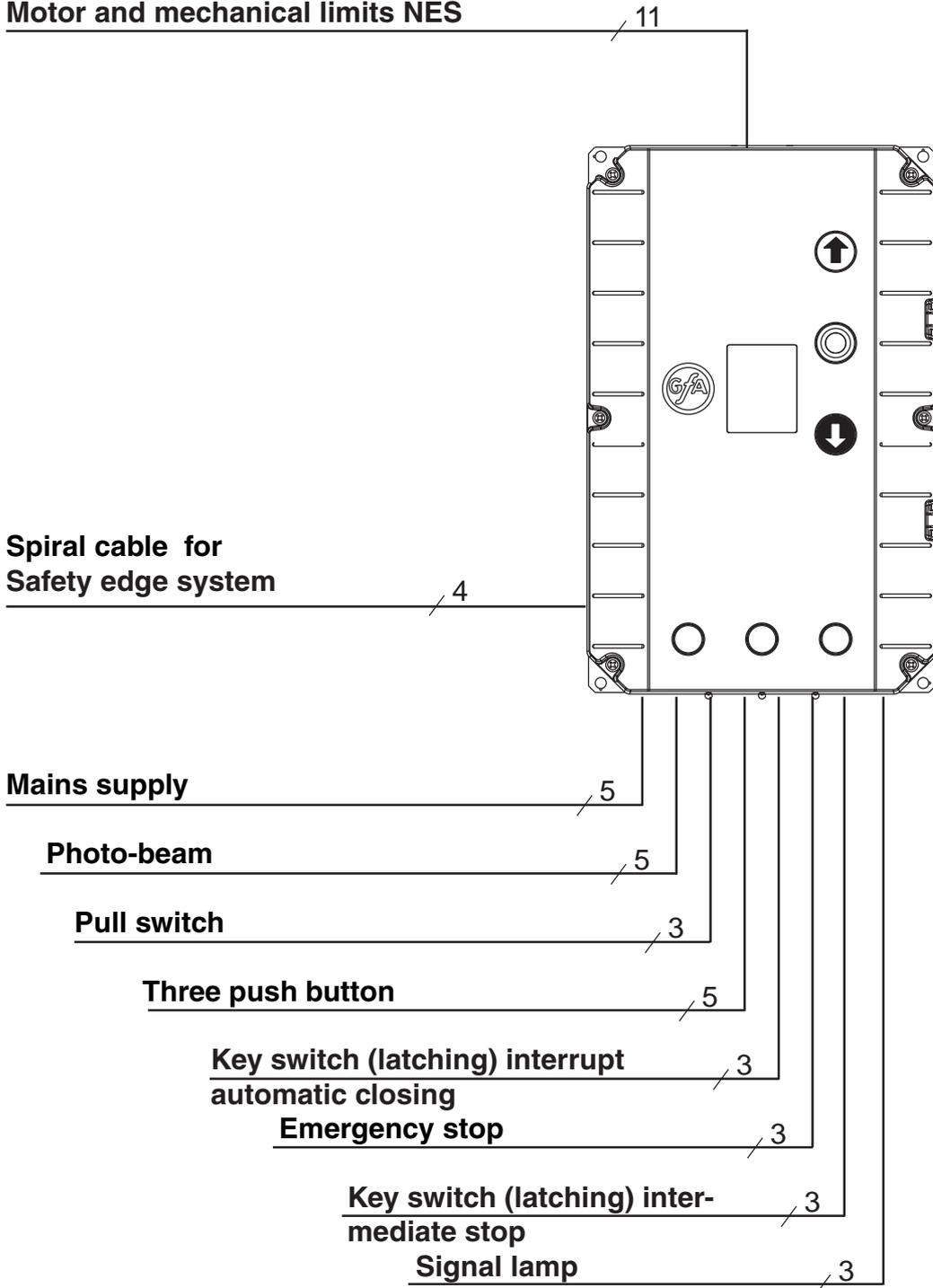
INSTALLATION OVERVIEW



Important!

Using the connection cable outside the building is not permitted.

Connection cable ELEKTROMAT® for Motor and mechanical limits NES



____/____ () Number of cores in the cable

ENCLOSURE INSTALLATION

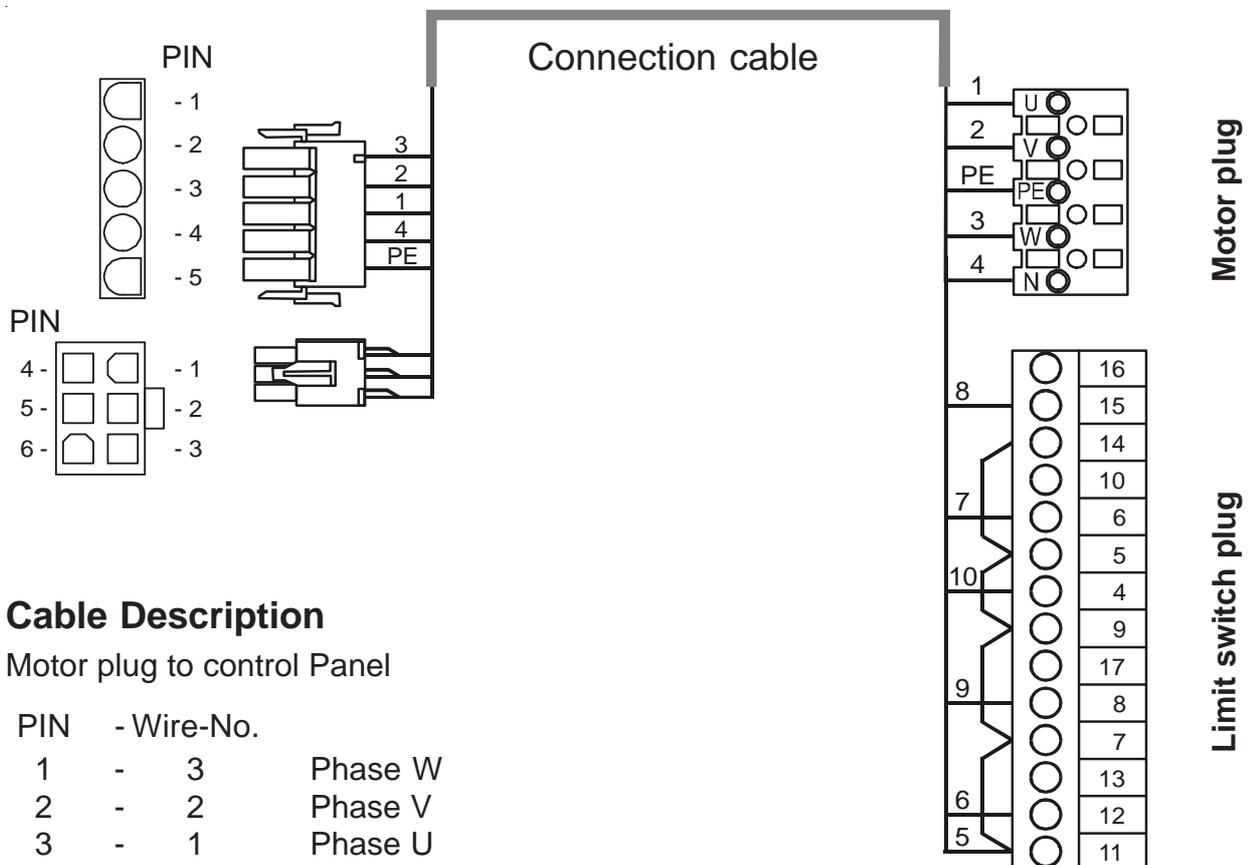
Before mounting the enclosure, the surface has to be checked for flatness, slope and freedom from vibrations. Mounting must be vertical. It is important that the door can be clearly seen from the position of the control through-out its travel.

CONNECTING THE CONTROL AND THE ELEKTROMATEN®

After the drive and control are fitted they can be connected with a plug-in cable. The cable has plugs on each end and for easy fitting. The plugs for motor and control panel are different and cannot be interchanged.

Control panel TS 961

ELEKTROMAT®



Cable Description

Motor plug to control Panel

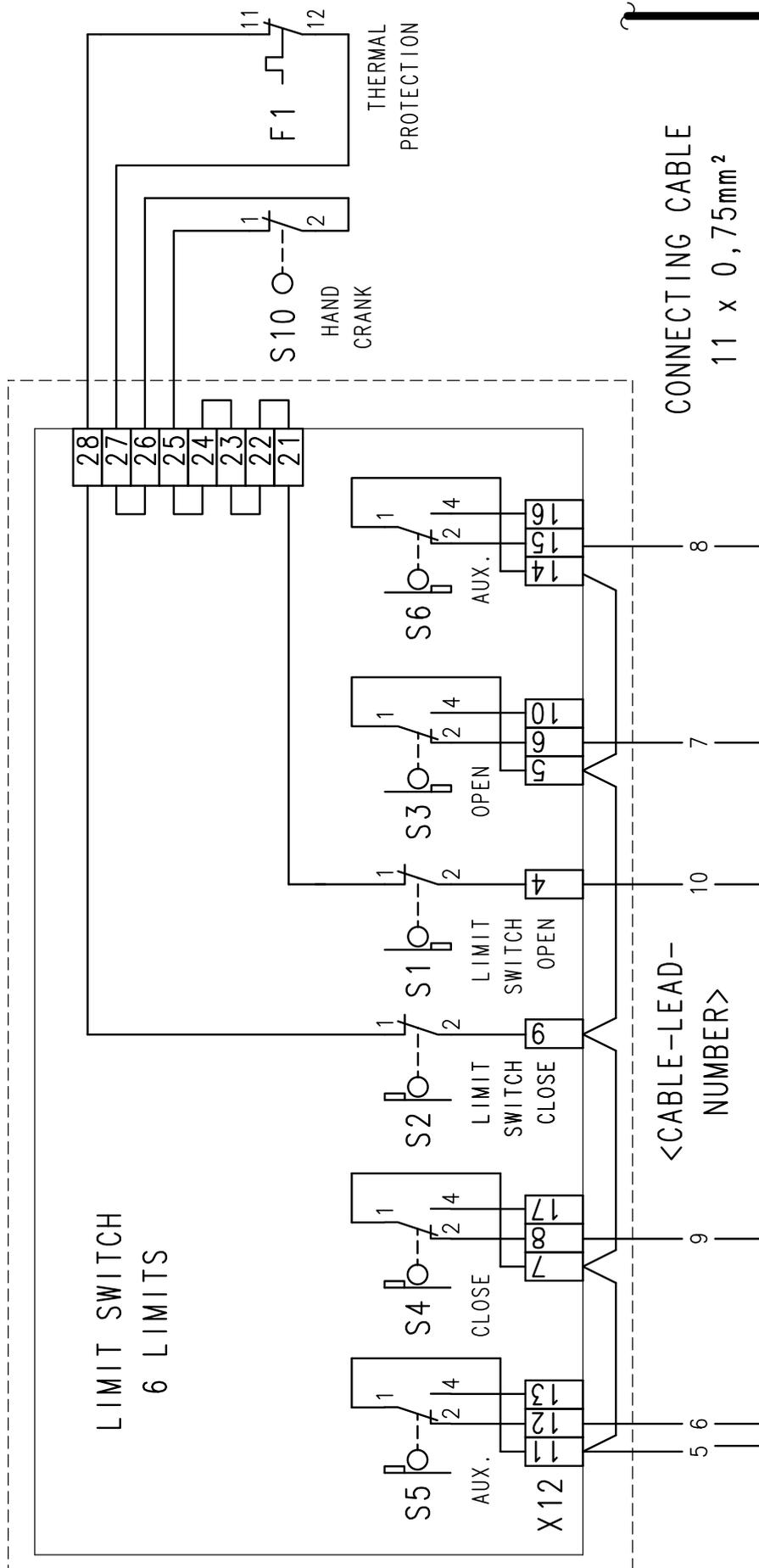
PIN	-	Wire-No.	
1	-	3	Phase W
2	-	2	Phase V
3	-	1	Phase U
4	-	4	Neutral (N)
5	-	PE	Earth

Limit switch plug to control panel

PIN	-	Wire-No.	
1	-	5	supply + 24V
2	-	6	S 5 aux. limit only for Testing of safety edge system
3	-	7	open - limit
4	-	8	S 6 aux. limit for intermediate Stop or switching contact
5	-	9	close limit
6	-	10	safety circuit common limit

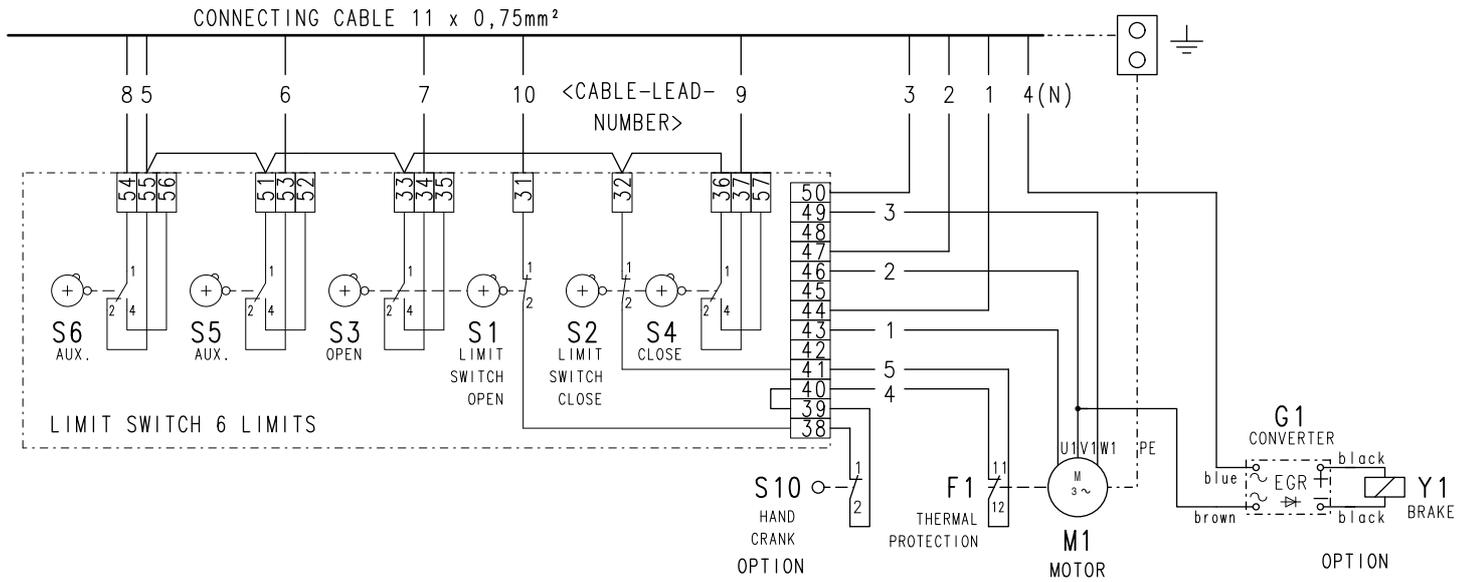
LIMIT SWITCH CONNECTION

Plug - in system



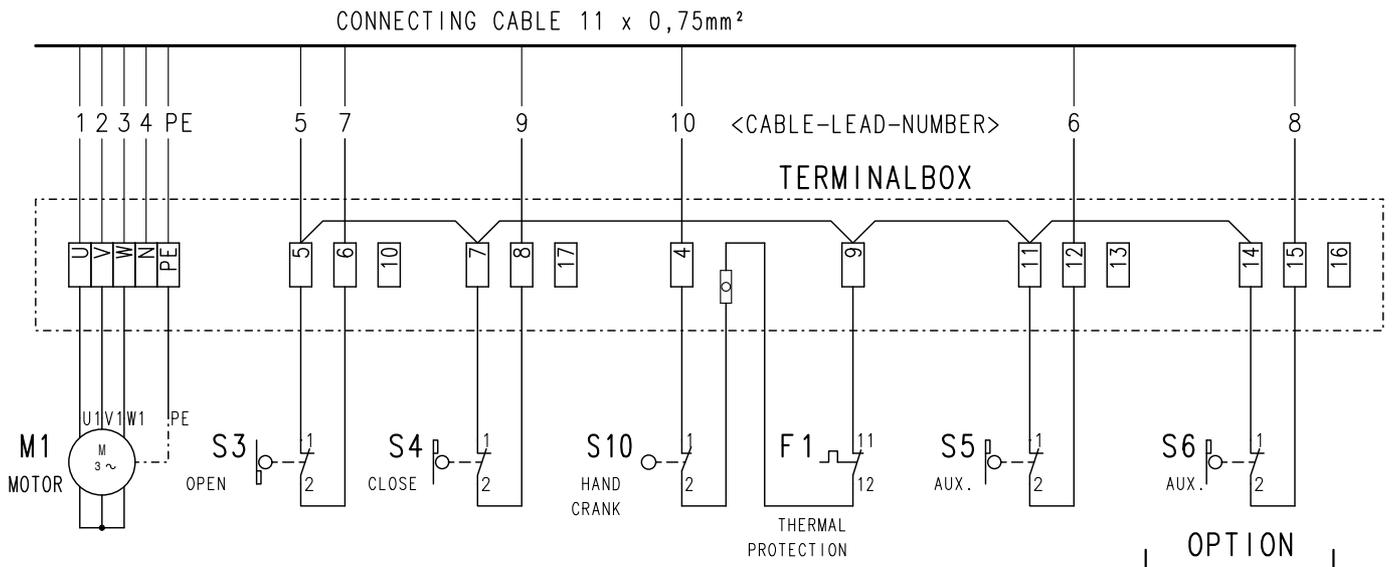
LIMIT SWITCH CONNECTION

Terminal version (until year 1997)



LIMIT SWITCH CONNECTION

Single-limit-switches



MAINS SUPPLY



DANGER! To the life and health thru electric shock.
Before mounting the mains supply must be switched OFF.



Important note!
The bridge must be fitted into the right terminal otherwise the print could be destroyed.



External fuse!
Control must be saved against short circuit and overload by an external fuse, max. 10A delayed, in the mains supply. An automatic cut off switch is required, regarding the supply for three-phase or single-phase.

When connecting control to mains supply a mains isolator switch or (16A CEE – plug) according EN 12453 is required.

The supply disconnect device (Main switch or CEE plug) must be installed between 0,6m and 1,7m above floor level.

The CONTROL PANEL TS 961 has a universal electric supply and works with the following supplies. (See diagram Fig.1-5)

Mains supply terminal

Fig.: 1

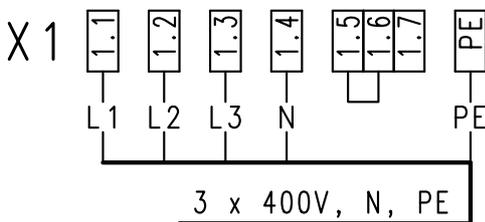


Fig.: 2

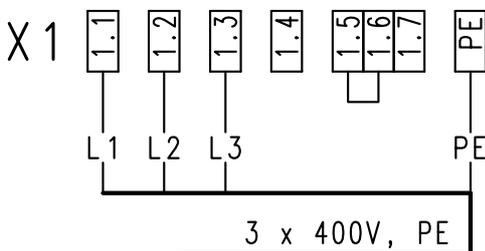


Fig.: 3

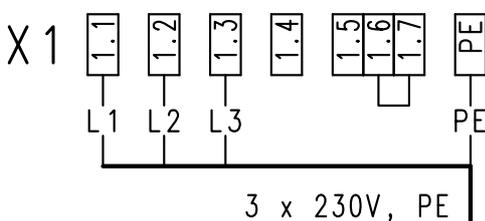


Fig.: 4

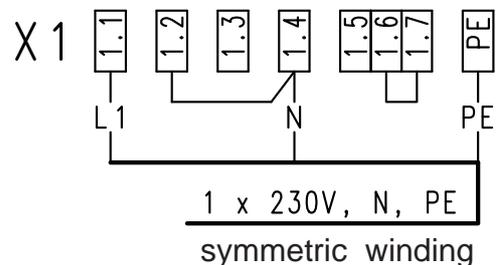
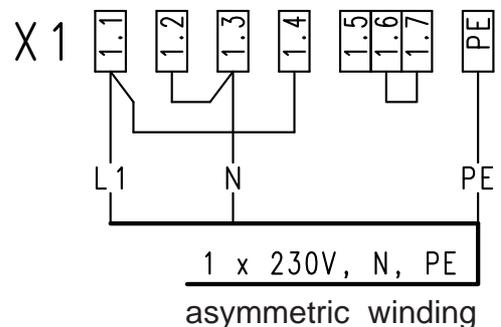


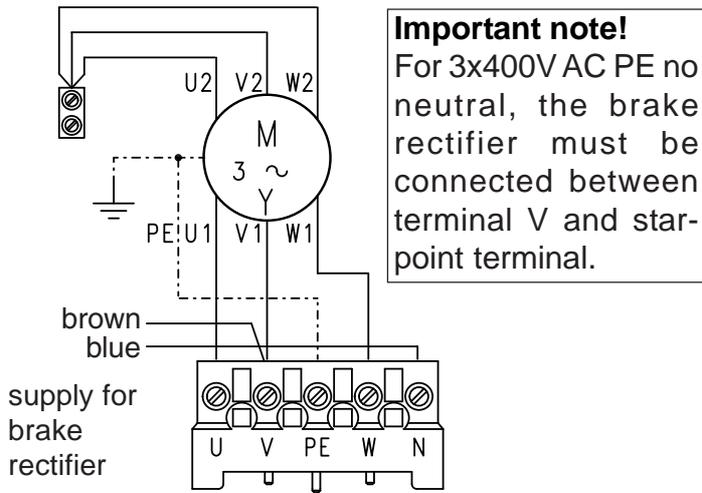
Fig.: 5



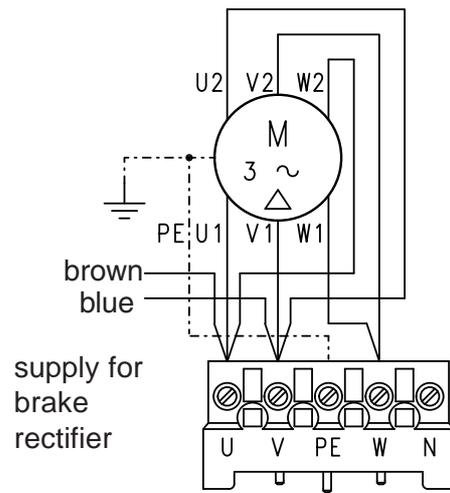
400V – mains supply = 1.5 / 1.6
230V – mains supply = 1.6 / 1.7

MOTOR CONNECTION (internal wiring)

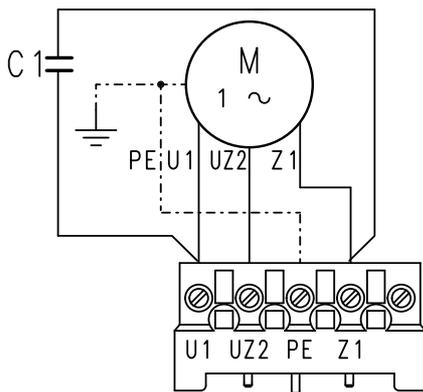
Three-phase 3 x400 V AC, N, PE
Star connection



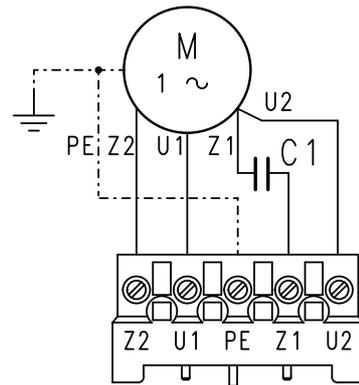
Three-phase 3 x230 V AC, PE
Delta connection



Single-phase 1x230 V AC, N, PE
symmetrical winding



Single-phase 1x230 V AC, N, PE
asymmetrical winding



On several ELEKTROMATEN® the connection U1 und V1 on the motor-plug are interchanged.

PHASE ROTATION



Important Notice!

After the Mains supply has been connected by inserting the CEE plug in the appropriate socket or turning on the main switch, confirm that the phase rotation is correct by checking that the door opens when the OPEN push button is operated.

If the door closes when operating the OPEN push button reverse two phases at the terminal X1.



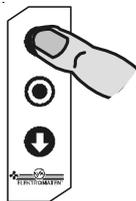
DANGER! To the life and health through electric shock.

Before changing phase rotation the mains supply must be switched OFF.

LIMIT SWITCH - ADJUSTMENT

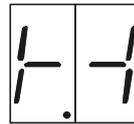
After checking the phase rotation, the limit switches must be adjusted in the following steps. When open and close position limits have been set the safety limits are automatically pre-adjusted. Eventually fine adjustment could be required. Please see Mechanical Operating Instruction.

1. Move the door to final open position

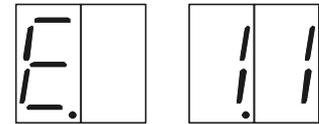


Door open

press button to reach upper limit



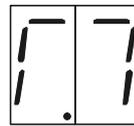
Display shown - door between final limit positions



Display flashing during the door upwards movement

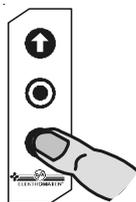
2. Adjustment final open limit

After reaching the final open position the limit S3 must be switched with green limit cam S3 and panel display changes to „Door final open position“



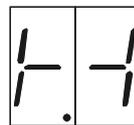
Display shown - door open

3. Move the door to final close position

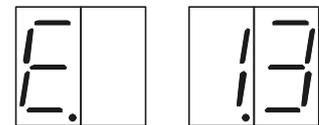


Door close

press button to reach lower limit



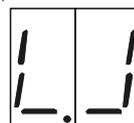
Display shown - door between final limit positions



Display flashing during door downwards movement

4. Adjustment final close position

After reaching the final close position the limit S4 must be switched with green limit cam S4 panel display changes to „Door final close position“

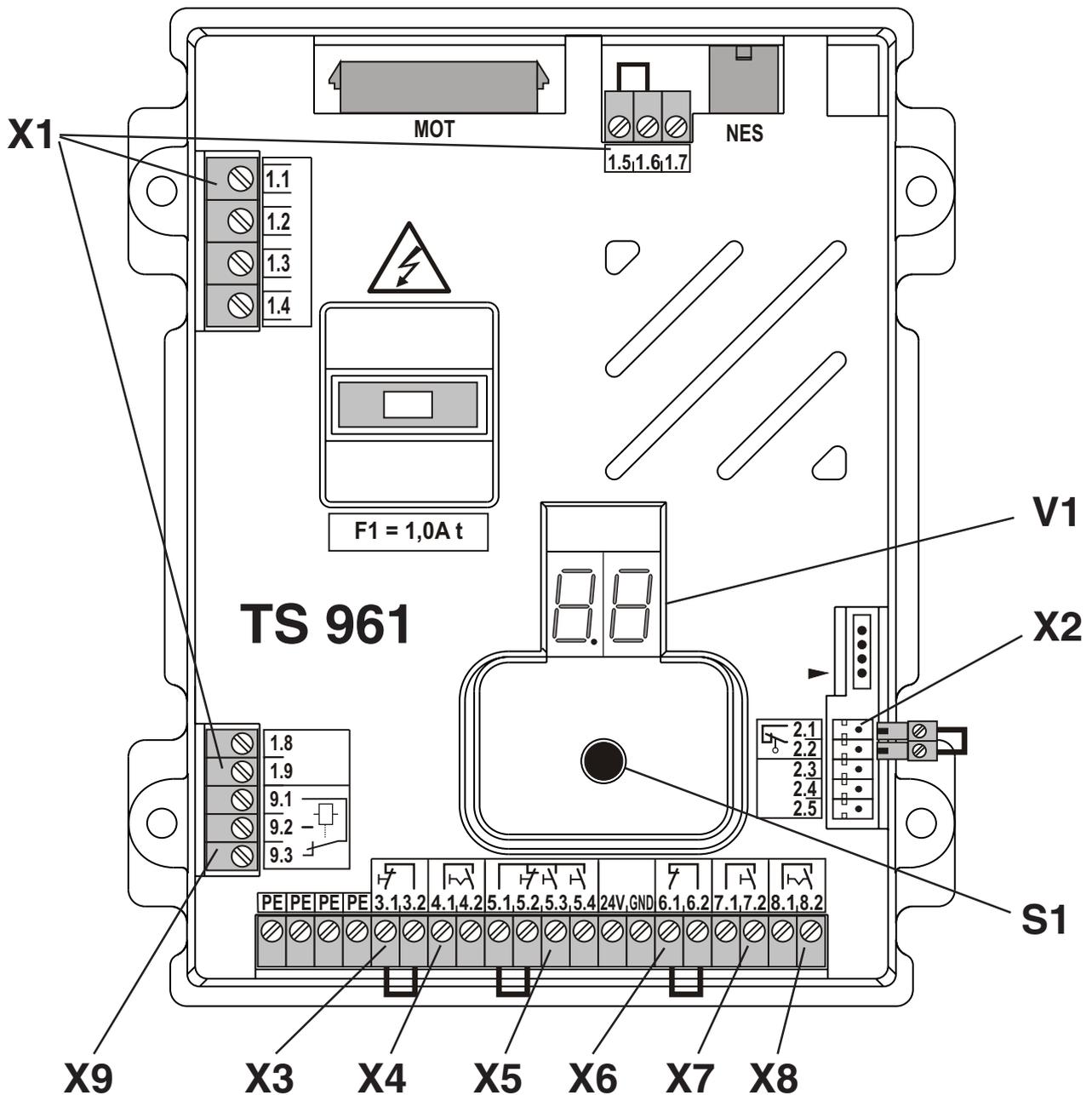


Display shown - door closed

Working limit adjustment is complete

**The door could be moved in DEADMAN mode UP/DOWN
Further adjustments see programming mode (Page 16)**

HARDWARE OVERVIEW

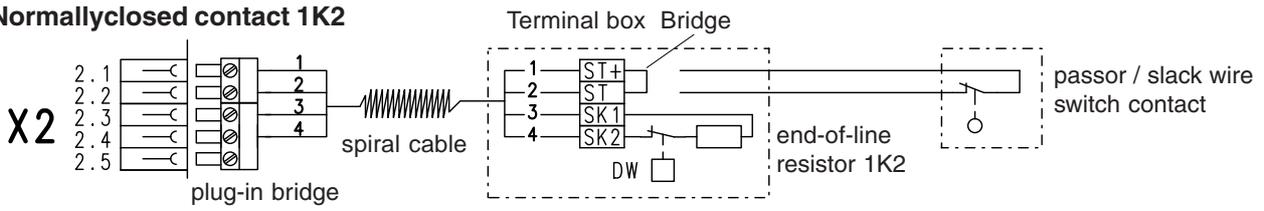


Description Print:

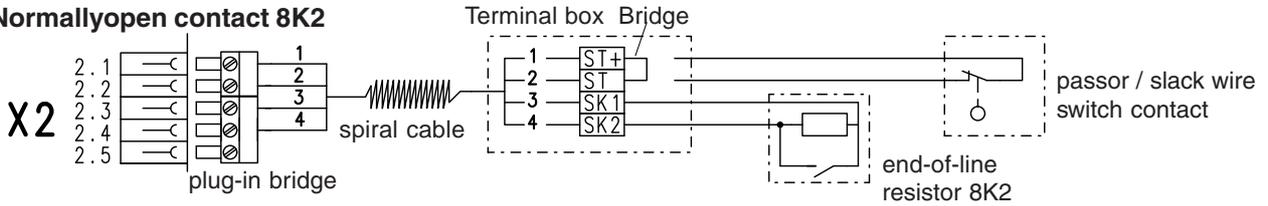
- | | |
|---|--|
| <p>X1 Mains supply
external supply 230V
1.9 = L1 fused with F1 = 1A
1.8 = N
(only with 3 x 400V, N, PE und 1 x 230V, N, PE)</p> <p>X2 Safety edge system and pass-door plug</p> <p>X3 Emergency push button</p> <p>X4 Key switch (latching) interrupt automatic closing</p> <p>X5 Three push button / key switch</p> <p>X6 Light barrier reflective or receiver- transmitter type</p> <p>X7 Ceiling pull switch / Radio control</p> <p>X8 Key switch for intermediate stop</p> <p>X9 Potential free relay contact
warning light or annunciator</p> | <p>S1 Selector switch</p> <p>V1 7-segment display</p> <p>MOT Motor connection</p> <p>NES Mechanical limit connection</p> <p>▶ Internal push button</p> |
|---|--|

WIRING DIAGRAM

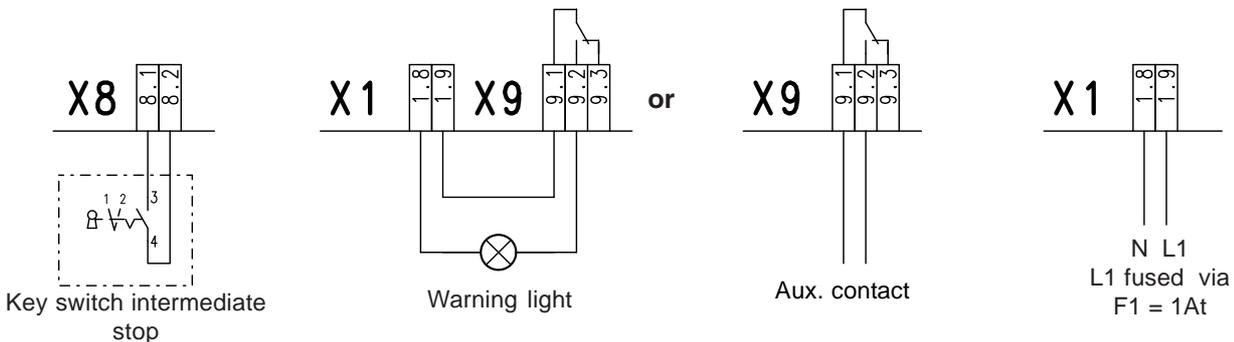
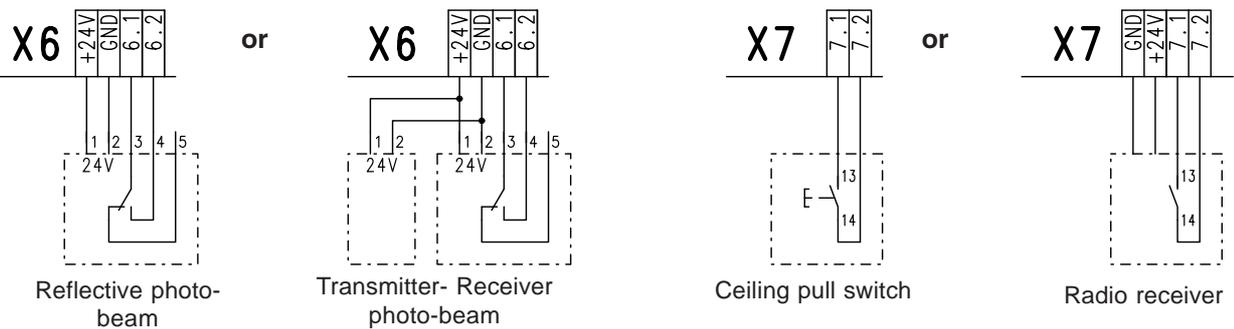
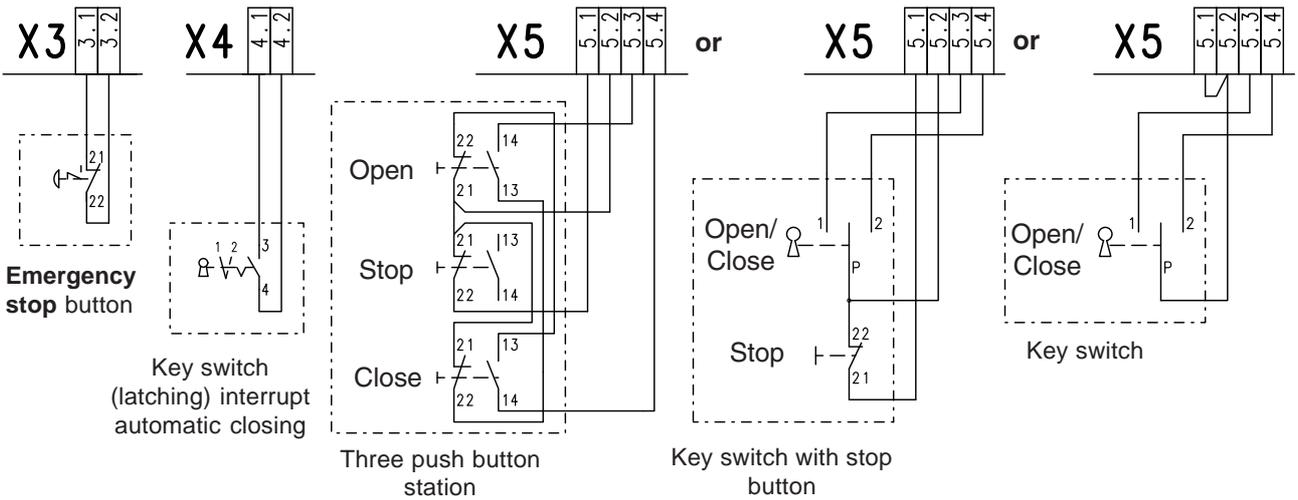
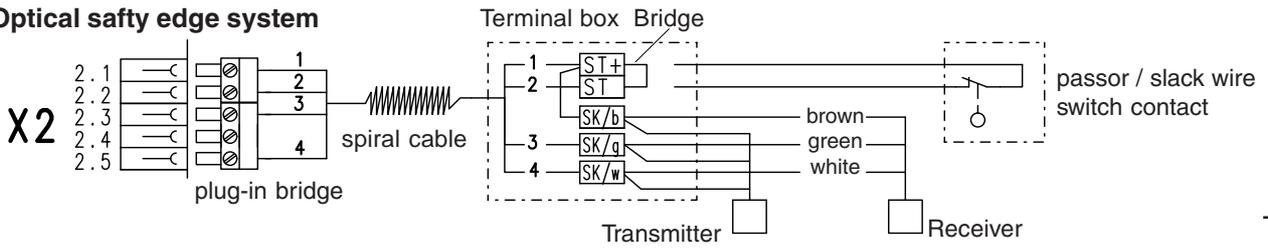
Normallyclosed contact 1K2



Normallyopen contact 8K2



Optical safty edge system

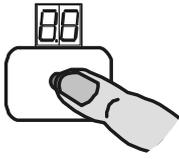


Page 19, 20

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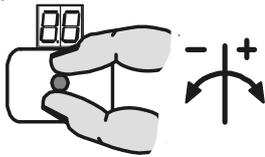
CONTROL PROGRAMMING

1. Enter programming Mode



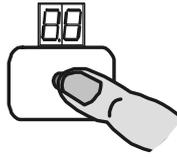
Press selector switch for 3 sec. until **display = 00**

2. Chose program and confirm



Turn selector

and

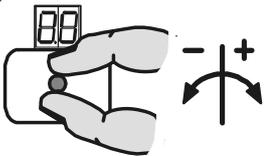


press selector



3. Adjustment

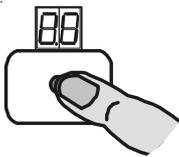
Functionen



Turn selector

4. Memorise

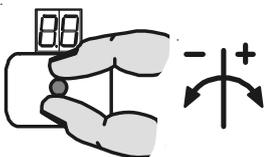
Functionen



Press selector

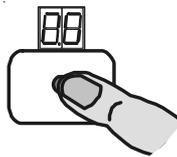
further adjustments

5. Exit programming



Turn selector until display = 00

and



Press selector

CONTROL PROGRAMMING

2. Choose program and confirm	3. Adjustment	4. Memorise
Operating mode		
 Door function	  Dead man OPEN Dead man CLOSE  Self-hold OPEN Dead man CLOSE  Self-hold OPEN Self-hold CLOSE  Self - hold OPEN, CLOSE (X5) release for external pushbutton function only dead man close	<input type="radio"/> Press selector
Functions		
 Safety edge function in Pre - limit area	  Safety edge is activated  Safety edge is deactivated	<input type="radio"/> Press selector
 Automatic closing feature	  time can be set between 1 - 240 sec. 0 = OFF	<input type="radio"/> Press selector
 Automatic closing after photo-beam is interrupted and re-made	  OFF  ON	<input type="radio"/> Press selector
 Relay function	  OFF  Switch contact impulse signal  Switch contact continuous  Signal lamp starts flashing with 3 sec. pre-warning time when door Open's and Close's; Continuous light while the door is moving  Signal lamp starts flashing with 3 sec. pre-warning time only when door Close's direction; Continuous light while the door is moving  Steady burning light with 3 sec. warning flashes before the door starts for Opening or Closing  Signal lamp: Continuous red light with 3 sec. pre-warning from open position	<input type="radio"/> Press selector
 Step by Step function (X7): only Ceiling pull switch / Radio remote control	  Commands door travels to Open or → Closed position during closing door Stops and re-opens  Commands Open → Stop → Close → Stop → Open	<input type="radio"/> Press selector
 Runtime monitoring	  time can be set between 1 - 90 sec. 0 = OFF	<input type="radio"/> Press selector

CONTROL PROGRAMMING

2. Chose program and confirm	3. Adjustment	4. Set
Maintenance cycle counter		
 Counter adjustment	  01-99 correspond from 1.000 up to 99.000 Count down cycles	<input type="radio"/> Press selector
 Reaction when reaching 0	  Display appears „CS“ and adjusted number of cycles  Changing to DEADMAN display appears „CS“ and adjusted number of cycles  Changing to DEADMAN same as 0.2 reset to about 500 cycles possible, press 3 sec. Stop – Button	<input type="radio"/> Press selector
Reset		
 RESET except cycle- and Program change counter	  Reset	<input checked="" type="radio"/> Press stop button 3 sec.

MEMORY CHECK

2. Chose program and confirm	Displayed	
 Info Cycle counter 7- digit	<input type="radio"/> Press selector	       M HT ZT T H Z E The cycles would be displayed as follow. M = 1.000.000 H = 100 HT = 100.000 Z = 10 ZT = 10.000 E = 1 T = 1.000
 Info last 2 faults	<input type="radio"/> Press selector	Last 2 faults would be alternately displayed.
 Info Program changes 7- digit	<input type="radio"/> Press selector	       M HT ZT T H Z E The Number of program changes would be displayed as follow. M = 1.000.000 H = 100 HT = 100.000 Z = 10 ZT = 10.000 E = 1 T = 1.000
 Info Program version	<input type="radio"/> Press selector	Program version will be displayed

SAFETY DEVICES

Safety edge system with optional connection for shutter pass - door or slack wire switch contact **X2**

The control recognizes and works with 3 different safety edges.

Each one needs a special 4 core spiral cable and includes an optional shutter pass - door or slack wire switch contact.

The spiral cable connection must be made on the print with the plug provided. The opposite side of the cable is connected to a terminal box or a signal (pressure switch) emitter.

Typ 1: Resistance evaluation 1K2 with normally closed safety edge contact
(safety edge with pressure wave switch and "Testing")

Typ 2: Resistance evaluation 8K2 with normally open safety edge contact

Typ 3: Optical safety edge (Vitector)



Important note!

When connecting a safety edge, take account of EN 12978 for Industrial, commercial and garage doors and gates - Safety devices for power operated doors - Requirements and Test methods.

Mounting the spiral cable

A bush is provided on both sides of the control box for mounting the spiral cable.

Push the plugs through into the enclosure until there is sufficient cable to allow the (2 and 3 pole) plugs to be connected to the board. The plug with two cores must be connected to the passdoor or slack wire switch terminals. The three core plug must be connected to the safety edge terminal.

The control panel TS 961 recognizes on first installation the safety edge system being used.

If passdoor / slack wire switch contact exists, remove bridge at terminal ST and ST+ in the terminal box. The plug at terminal X2 must be removed.

Adjustment pre-limit S5

The pre-limit switch S5 must be set to avoid a continuously re-opening of the door out of the final close position, if the safety edge system has been actuated.

Set the S5 limit switch 5 cm before the final close position to interrupt the re-open function.

SAFETY DEVICES

Typ 1: Resistance evaluation 1K2 with normally closed safety edge contact

This evaluation system is made for pressure-wave switches (N/C) within an end-of-line resistor of 1K2 +/- 5% 0,25W.

A pressure wave is generated by compressing the rubber profile, which is conducted to the pressure-wave switch through the plastic hose. The system should be tested in the CLOSE position. The pre-limit would be set automatically and activate the "Testing function".

When the shutter runs over the pre-limit door position, a timer of two seconds starts to countdown at once. If a pressure wave activates the pressure switch in this time the TS 970 recognizes the function of the safety edge. If the pressure switch has not been activated, the control goes into fault mode and the system works only in DEAD MAN function in downwards direction. Fault information F 2.8 would be displayed.

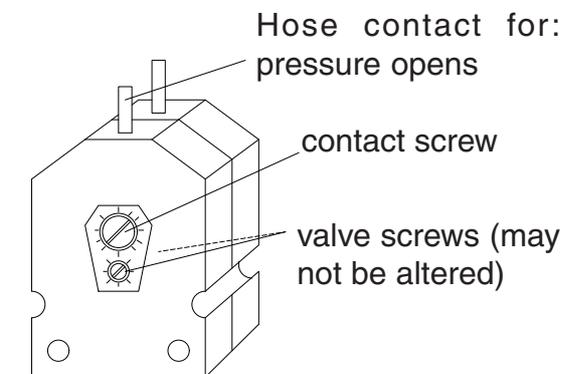
Pressure-wave switch - function

The contact between the contact screw and diaphragm is opened (opening contact). The pressure-wave switch is set to a release pressure of approx. 1,5 mbar.

The valve screws are set to a throughput of 110 ml/min with a static admission pressure of 5 mbar. This warrants that a maximum temperature increase of 30° is compensated for in 20 minutes.

The setting of the valve screws may not be altered. Should the release pressure be insufficient (pressure wave too insensitive), the contact screw may be turned counterclockwise to the left by 1-2 graduation marks. The switch's sensitivity is thus increased.

In case of excessive sensitivity, the contact screw is set clockwise by 1-2 graduation marks (decreased sensitivity).



Pressure-wave switch

Typ 2: Resistance evaluation 8K2 with normally open safety edge contact

This evaluation system is made for electrical safety edges within an end-of-line resistor of 8K2 +5% 0,25W. The resistor must be connected parallel with the switch in the safety edge.

Typ 3: Optical safety edge (Vitector)

The principle of operation is as a one way light barrier. By activating the safety edge, the photo-beam will be interrupted.

SAFETY DEVICES

Function of the safety edge system

With menu 2.1 the function of the safety edge system can be chosen.

Function	Reaction following the activation
Active safety edge	stop
De-activated safety edge	no reaction, door moves until final limit close only for folding doors



Important note!

When the safety edge has been operated twice the automatic closing feature will be interrupted and fault F2.2 will be displayed.

To reset the fault press the internal push button  so that the door travels down until the final limit is reached.

Emergency stop X3

These terminals are to connect an emergency stop button according to EN 418. Alternatively the terminals can be used to connect a safety device against entrapment (e.g. self-testing light barrier).

FUNCTION DESCRIPTION

Key switch (latching) interrupt automatic closing X4

The automatic closing time can be interrupted with a normally open switch (latching)

Internal push button / Three push button / Key switch X5

Internal and external push button

Internal and external push button working separately from each other. Pushing at the same time, the internal push button has priority.



Important note!

Dead man mode UP and DOWN with internal push button.

Dead man mode DOWN with external push button. (Menu 0.1 Adjustment 0.4)

In Dead man mode the user shall be in full view of the door throughout its travel.

Runtime monitoring

The travel time of the door can be adjusted - Menu 3.3 – the adjusted time will be measured and compared while the door is travelling between the final positions.

If this adjusted worth will be exceeded F 5.6 appears in the display (this is exceeded running time).

To reset the fault press the foil key pad  so that the door travels down until the final limit is reached.



Note!

The running time is pre-adjusted by 90sec.

Adjustment recommendation: Take the real running time from the open to the close position + 7 sec.

Automatic closing

Menu 2.3 the timer works between 1 - 240 sec. If the automatic closing is active, the shutter will close, from each limit position after the pre-adjusted time.



Important note!

The timer can be interrupted by pressing internal pushbutton stop button when the shutter has reached a limit position. With a new command UP / DOWN the timer is re-set.

Automatic closing interruption

Menu 2.4 can be used if the timer operation is required after interrupting and re-making the photo-beam. The door closes after 3 seconds.

FUNCTION DESCRIPTION

Photo-beam for Closing Direction X6

One external photo-beam (thro' beam or reflective photo beam) can be connected to the control. A 24V DC supply for the photo-beam is available.



Important note!

The load on the 24 V DC power supply may not exceed 150 mA.

The light barrier is used in a normally closed operating mode.
In case the light barrier is activated or it malfunctions the contact will open and cause following reactions.

Door Position	Reaction when Photo-beam is Interrupted
Door closed	no reaction
Door opening	no reaction
End position open *) without timer active	no reaction
End position open *) with timer active	resets open timer for automatic closing mode
Endposition open *) with timer active and time interruption	With the photo-beam connected the shutter closes after 3 sec. when the beam has been interrupted and remade The time delay is cancelled and re made.
Closing Door	Stops and re-opens fully *)

*) or to the intermediate stop position when the key switch is in the on position (Terminals X8)

FUNCTION DESCRIPTION

Ceiling pull switch / Radio control **X7**

It is possible to connect a ceiling pull switch or a radio receiver.

The radio receiver's switching contact must be potential free. A small receiver can be fitted into the upper part of the housing under the cable entry.

With each command (contact) the shutter operates in the following sequence:

Shutter position	Shutter operation
Shutter closed	Shutter moves to fully open
Shutter moving upwards	No reaction
Shutter open	Shutter moves to fully closed position
Shutter intermediate position open	Shutter moves to fully open
Shutter moving downwards	Shutter will STOP and move BACK UP
See commands page 17 Control menu 2.6 Adjustment 0.2 step by step function	

*) or to the intermediate stop position when the key switch is in the on position (Terminals X8)

Key switch – intermediate stop **X8**

Intermediate stop can be activated / de-activated by connecting a key switch (latching ON-OFF). The intermediate shutter position „PART OPEN“ is only in effect in the upwards direction and is the new open position. Must be adjusted with limit switch S6.

By turning the key switch to the OFF position, the shutter works in standard mode.

If limit switch S6 is used for the intermediate stop then the relay contact can be used for a single light but not for a switching relay contact.

FUNCTION DESCRIPTION

Potential free changeover contact **X9**

In menu 2.5 this contact is able to work for several functions.



Important note!

It is only possible to work with one adjusted function.

For functioning as a switching contact, impulse or continuous, the switching position must be adjusted by limit switch S6.

Impulse signal On reaching the limit switch the relay contact is made for 1 second.

Continuous signal Relay contact is activated as long the limit switch is made.

Maintenance cycle counter

Free adjustable maintenance cycle counter **Menu 8.5** makes it possible to pre-adjust a max. No of cycles until a maintenance is agreed.

The no of cycles can be adjusted from 1.000 up to 99.000; the adjustment is possible in steps of 1.000 cycles.

Three different reactions can be chosen if the point of pre- adjusted maintenance cycles has been reached, see **Menu 8.6**

Whenever the final open limit has been contacted the pre-adjusted number will be reduced with 1 until 0 is reached.

When maintenance was done the cycle counter could be re-adjusted to a new maintenance period and count down starts again.

Short circuit / overload monitor

The TS 961 control panel delivers 2 supplies for external devices.

230V AC; max. 1A

24V DC; max. 150mA

At a short circuit or overload at the 24V DC supply, the display is off.

OPERATING STATUS DISPLAY

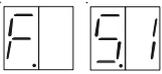
The control TS961 can display up to three different status conditions one after another. Each status is displayed with a letter and a number. The letter and the number are flashing alternately, thereby the control differentiates between a FAULT = **F** and a command = **E**.

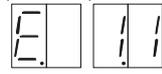
Report	Description	Measure to solve the problem
	Pass door contact open	Check the proper operation of pass door contact, or whether the supply cable is broken
	Emergency stop activated	Check the emergency stop is activated, or whether the supply cable is broken
	Failure pass door contact X 2.1- X 2.2 or control voltage circuit less than 24V	Check pass door circuit's transition resistance and whether pass door switch works; verify the voltage is OK at 24V terminal to GND
	Failure input pass door X 2.1- X 2.2	For reset switch control panel OFF-ON
	Safety edge not recognised	Check the safety edge is connected correctly or the wrong type has been selected in the program
	Light barrier activated	Check the light barrier has been fitted properly, or whether the connecting cable is broken
	Safety edge operated in two consecutive cycles	Check if there is an obstacle in the shutter area, or the connecting cable is broken or there is a short circuit in the cable
	Safety edge 8K2 activated	Check the safety edge is activated or there is a short circuit in the connecting cable

OPERATING STATUS DISPLAY

Report	Description	Measure to solve the problem
	Safety edge 8k2 defect	Check safety edge and connecting cable are not broken
	Safety edge 1K2 activated	Check safety edge and connecting cable are not broken
	Safety edge 8k2 defect	Check safety edge and connecting cable do not have a short circuit
	Safety edge 1k2 pneumatic system TESTING negative	Check the proper safety edge function and that testing in the lower door position is correct
	Optical safety edge activated or defect	Check the proper safety edge function or whether the supply cable is interrupted
	Safety open or close limit operated	Turn mains supply OFF and move the shutter downwards - with the manual operator- until the safety limit is free or the open limit should be re-adjusted.
	Emergency operator or motor-winding thermal protection operated	Check emergency operator or whether the drive unit is overloaded.
	Faulty actuation of the pre-limit S5	The pre-limit switch S5 was actuated in the final open position. The working position must be approved, please see also pre-limit S5 adjustment.

OPERATING STATUS DISPLAY

Report	Description	Measure to solve the problem
	ROM - Fault	Reset by switching OFF or change the control
	Internal fault report	Reset by switching OFF or change the control
	RAM - Fault	Reset by switching OFF or change the control
	Internal control fault	Reset by switching OFF or change the control
	Time overrun	Check the shutter mechanics. Check the limit shaft for function (turning).

Report	Command description
	open command being given
	stop command being given
	close command being given

	adjusted cycles for maintenance reached
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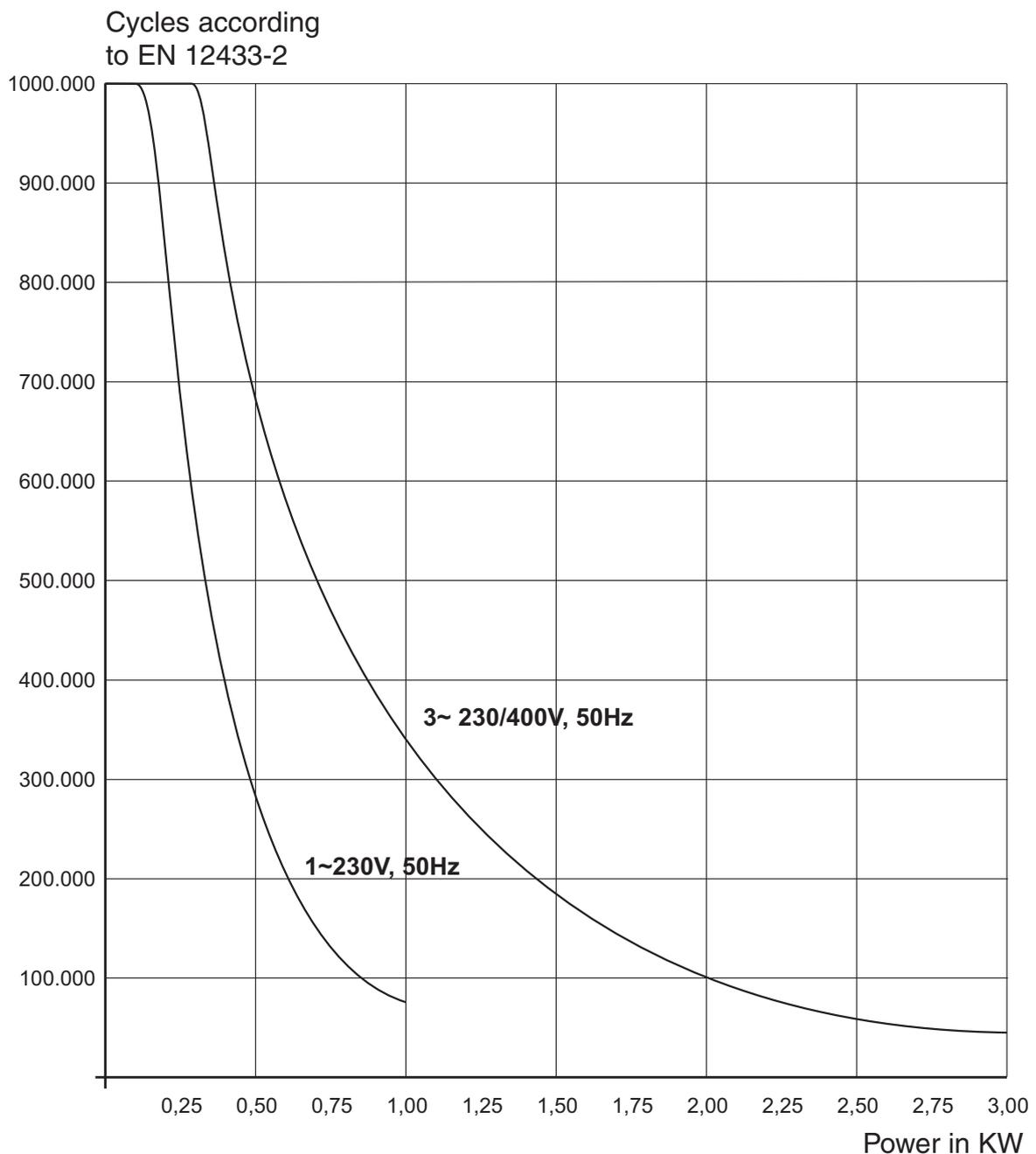
	Display off = short circuit or overload at the 24V DC supply
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TECHNICAL DATA

Housing Dimensions	190mm x 300mm x 115mm (B x H x T)
Mounting	vertical
ELEKTROMATEN® Supply	Three-phase 3 x 230 / 400V AC ± 5%, 50...60Hz Single-phase 1 x 230V ± 5%, 50...60Hz Power max. at 3 x 400V AC, max. 3kW
Control supply via L1,L2	400V AC or 230V AC + - 10%, 50-...60Hz, voltage changing with bridge to 3- pol terminal, safety fuse F1 (1A t)
External supply fuse	10A delayed
Permitted Load	ca. 15 VA (without motor and ext. 230V)
External supply 1	230V via L1 and N, safety fuse F1 (1A t)
External supply 2	24V DC uncontrolled, max. Load 150mA, Protected via electronic fuse
Inputs	24V DC / typ. 10mA signal length must be more than 100ms
Relay output	If inductive loads are to be switched (e.g. other relays) those have to be protected with free-wheeling Diodes contact load at 230V max. 1A
Temperature	Working: +0.... +40°C Storage: +0....+50°C
Humidity:	To 93% not condensing
Vibration:	Vibration free mounting, e.g. on flat built wall
Protection class	CEE Plug IP54, IP65 deliverable

LIFETIME / DOORCYKLES

The GfA control panels working with electro mechanical contactor boards. Contactor boards having generally a limited life time; this depends on the switched power of ELEKTROMATEN® in use and the amount of switching cycles. Therefore we recommend a replacement for control boards in use after doors having reached their confirmed lifetime cycles. Coherence between power and amount of cycles for ELEKTROMATEN® describes diagram bellow.



DECLARATION OF INCORPORATION

in the terms of Machinery Directive 2006/42/EC
for partly completed machinery, Appendix II Part B



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Declaration of conformance

in terms of EMC Directive 2004/108/EC

We, the
GfA - Gesellschaft für Antriebstechnik
hereby declare that the following products are conform with the
above EC Guidelines and are only intended for installation in door equipment.

Door control panel TS 961

Standards applied

- DIN EN 12453** Doors - safety in use of power operated doors
- DIN EN 12978** Industrial, commercial and garage doors and gates -
Safety devices for power operated doors - Requirements and Test methods
- DIN EN 60335-1** Safety of household and similar electrical appliances
Purposes - Part 1 : General requirements
- DIN EN 61000-6-2** Electromagnetic compatibility (EMC) Part 6-2
Generic standard – Emission standard for industrial environments
- DIN EN 61000-6-3** Electromagnetic compatibility (EMC) Part 6-3
Generic standard – Emission standard for residential,
commercial and light-industrial environments

We undertake to transmit in response to a reasoned request by the appropriate regulatory
authorities the special documents
on the partly completed machinery.

Authorised representative for the compilation of the relevant technical documents

(internal EU address)

Dipl. Ing. Bernd Synowsky
Documentation representative

Incomplete machines within the meaning of the EC Directive 2006/42/EC shall only be intended
to be integrated into other machines (or into other incomplete machines/systems) or to be
assembled with them to form a complete machine within the sense of the Directive. Therefore,
this product cannot be commissioned before it is determined that the entire machine/system to
which it was integrated shall comply with the provisions of the Machinery Directive indicated
above.

Düsseldorf, 01. 01. 2010

Stephan Kleine
CEO


Signature

FUNCTION OVERVIEW

- **Control panel for ELEKTROMATEN®** up to. 3 kW at 400V / 3~ phase with mechanical limits
- **7- Segment led display showing**
 - Programming the control panel
 - Displays Command - / Info- / Fault
- **Mains supply**
 - 400V / 3~ with and without Neutral
 - 230V / 3~
 - 230V / 1~ (for single-phase motors)
- **Door operating modes**
 - Dead-man open- and close
 - Self-hold open- and dead-man mode close (without safety edge)
 - Automatic open- and close (with safety edge connected)
- **Runtime monitoring**
- **Integrated safety edge systems**
 - 8K2 normally open contact
 - 1K2 normally close contact
 - optical safety edge system (System Vitector)
- **Automatic close feature**
 - Free programmable from 1 up to max. 240 Sec.
 - On interrupting and re-making light barrier closing after 3 sec..
 - Can be interrupted by a separate switch
- **Supply for external devices**
 - 230V (at 400V / 3~ with N), up to 1A load
 - 24V DC, up to 150mA load
- **Plug connection for the motor (5 - pole) and limit switches (6- pole)**
- **Plug for spiral cable (safety edge and pass-door contact)**
- **Internal pushbutton OPEN / STOP / CLOSE**
- **Additional terminals for different control equipment**
 - Emergency stop (LATCHING)
 - Additional safety stops
 - External three push button OPEN / STOP / CLOSE
 - Light barrier activated Stop and Reverse function, time reset, time interruption 3 sec.
 - One channel - impulse functions e. g. Ceiling pull switch for OPEN / CLOSE / STOP
 - sequencing or radio control
 - Key switch (latching) for intermediate Stop
 - 1x potential free relay output (NC / NO), output signal from aux. limit
 - If a signal lamp is in use, the potential free limit is not available