

Installation and operating instructions

Swing Gate Opener KOMET 200 - 600



Translation of original installation and operating instructions

D-ID: V2_0 – 12.12

ELKA-Torantriebe GmbH u. Co. Betriebs KG
Dithmarscher Str. 9
25832 Tönning
Germany

Phone: +49-(0) 48 61 - 96 90-0
Fax: +49-(0) 48 61 - 96 90-90
E-Mail: info@ELKA-Torantriebe.de
Internet: www.ELKA-Torantriebe.de

Contents

1	Preface	3
1.1	General notes	3
1.2	Copyright	4
1.3	Information regarding installation instruction	4
2	Safety	5
2.1	General notes on safety	5
2.2	Notes on safety for the operation	5
2.3	Safety notes for the operation with radio remote control	5
2.4	Intended use	5
2.5	Danger, which could emanate from the site of operation	5
3	Transportation and storing	7
3.1	Transportation inspection	7
3.2	Storing	7
4	Declaration of incorporation	8
4.1	Installation information for partly completed machinery	9
4.2	Declaration of conformity	9
4.3	Name plate	9
5	Usage	10
6	Technical Data	11
7	Installation example	13
8	Installation	14
8.1	Installation dimensions (pivot point)	14
8.2	Installation dimensions (elevation)	17
8.3	Installation at the gate and gate post	18
8.4	Adjusting of the internal stops (KOMET 200 and 280)	19
9	Emergency release	22
9.1	Emergency releasing	22
9.2	Engaging of emergency release	22
10	Controller MO 36	23
10.1	Electrical installation	23
10.2	Connections	24
10.3	Programming MO36	27
10.4	Safety contact profiles for gate open (SLA) and close (SLZ)	40
10.5	Additional modules	41
10.6	Power failure	42

10.7	Fault diagnosis	42
10.8	Emergency mode	43
10.9	Parameter and Original settings	44

1 Preface

1.1 General notes

These operating instructions must be available on site at all times. It should be read thoroughly by all persons who use, or service the appliances. Improper usage or servicing or ignoring the operating instructions can be a source of danger for persons, or result in material damage. If the meaning of any part of these instructions isn't clear, then please contact ELKA-Torantriebe GmbH u. Co. Betriebs KG before you use the appliance.

This applies to all setup procedures, fault finding, disposal of material, care and servicing of the appliance. The accident prevention regulations and applicable technical regulations (e.g. safety or electrical) and environment protection regulations of the country in which the appliance is used also apply. All repairs on the appliances must be carried out by qualified persons. ELKA-Torantriebe GmbH u. Co. Betriebs KG accepts no liability for damage which is caused by using the appliance for purposes other than those for which it is built.

ELKA-Torantriebe GmbH u. Co. Betriebs KG cannot recognise every possible source of danger in advance. If the appliance is used other than in the recommended manner, the user must ascertain that no danger for himself or others will result from this use. He should also ascertain that the planned use will have no detrimental effect on the appliance itself. The appliance should only be used when all safety equipment is available and in working order. All faults which could be a source of danger to the user or to third persons must be eliminated immediately. All warning and safety notices on the appliances must be kept legible.

All electrical periphery equipment which is connected to the appliance must have a CE Mark, which ensures that it conforms to the relevant EEC regulations. Neither mechanical nor electrical alterations to the appliance, without explicit agreement of the manufacturer, are allowed. All alterations or extensions to the appliance must be carried out with parts which ELKA-Torantriebe GmbH u. Co. Betriebs KG have defined as suitable for such alterations, and be carried out by qualified personnel. Please note that with any alteration of the product, no matter whether mechanical or electrical, the warranty expires and the conformity is revoked. Only the use of ELKA accessories and original ELKA spare parts is allowed. In case of any contravention ELKA disclaims liability of any kind.



INFORMATION!

The operation of the system within CEN countries must also be conformant with the European safety-relevant directives and standards.

We reserve the right to make technical improvements without prior notice.

1.1.1 Symbol explanation

Remarks regarding the safety of persons and the gate opener itself are marked by special symbols. These remarks have to be absolutely observed in order to avoid accidents and material damage.

**DANGER!**

...points to an imminent dangerous situation, which can cause death or serious injuries if it is not avoided.

**WARNING!**

...points to a potentially dangerous situation, which can cause death or serious injuries if it is not avoided.

**ATTENTION!**

...points to a potentially dangerous situation, which can cause minor or slight injuries if it is not avoided.

**ATTENTION!**

...points to a potentially dangerous situation, which can cause property damage if it is not avoided.

**REMARK!**

Important notice for installation or functioning.

1.2 Copyright

The operating manual and the contained text, drawings, pictures, and other depictions are protected by copyright. Reproduction of any kind – even in extracts – as well as the utilization and/or communication of the content without written release certificate are prohibited. Violators will be held liable for damages. We reserve the right to make further claims.

1.3 Information regarding installation instruction

This document is to be used as installation instruction for partly completed machinery (according to machinery directive 2006/42/EG, article 13, (2)).

2 Safety

2.1 General notes on safety

The valid regulations and standards have to be observed during installation and operation, e.g. DIN EN 13241-1, DIN EN 12445, DIN EN 12453 etc.

Only the use of spare parts made by the original manufacturer is allowed. Do not put a defective gate opener / barrier into operation.

After set-up (installation) every user of the equipment has to be instructed about the operation and function of the gate opener / barrier.

2.2 Notes on safety for the operation

Children and not instructed persons are not allowed to operate the gate system / barrier.

No persons, objects, or animals are allowed within the range of the gate movement / barrier movement during opening or closing.

Never reach into moving parts of the gate operator, gate or barrier.

Drive through the gate system /barrier only after complete opening.

The gate system / barrier has to be secured depending on the type of usage, corresponding to the valid standards and regulations (e.g. safety at the main and secondary closing edges).

The safety devices have to be checked regularly for functioning according to the standards and regulations, at least once a year.

2.3 Safety notes for the operation with radio remote control

The radio remote control should only be used, if the area of movement of the gate / barrier is always completely visible by the operator and thus it is assured, that no person, object, or animal is present within this range of movement.

The radio remote control transmitters have to be carefully kept, so that an unintentional use is impossible.

Radio remote controls should not be operated at radio-technical sensitive locations, like airports or hospitals.

Interferences by other (properly operated) radio communication installations, which are used within the same frequency range, cannot be ruled out.

2.4 Intended use

The operating safety is only guaranteed with the intended use of the gate opener.

After the installation, the swing gate opener of this serve the purpose of traffic flow control of vehicle paths (vehicle traffic only).

The controller MO 36 is a component part and controls the swing gate opener.

Any usage beyond this and/or any different application of the equipment is prohibited and isconsidered as not according to regulations.

2.5 Danger, which could emanate from the site of operation

The swing gate opener operates with movable parts.

**WARNING!**

Rotating and/or linear movable components can cause serious injuries.

Do not reach into moving parts or handle any moving components during operation.

- Turn the appliance off before any maintenance work, repair work or other work and secure it against unintentional restarting.

3 Transportation and storing

3.1 Transportation inspection

The shipment has to be inspected for transportation damage immediately after receipt. In case of any damage record the type and extent on the delivery receipt or refuse acceptance.

Inform ELKA-Torantriebe immediately in the event of damage.

In case the above points are not observed claims will be denied due to insurance regulations.

3.2 Storing

The swing gate opener has to be stored as follows:



Do not expose the gate opener to aggressive substances.



Do not expose the gate opener to heat sources.



Storage temperature -20°C to +70°C.

4 Declaration of incorporation



Declaration of incorporation for the installation of a partly completed machinery

according to EC Machinery Directive 2006/42/EC, annex II part 1 B

The manufacturer ELKA-Torantriebe GmbH u. Co. Betriebs KG
Dithmarscher Str. 9
25832 Tönning, Germany

We herewith declare that the partly completed machinery

Product description: Swing gate opener
Function: Swing gate opener to open and close swing gates
Type designation: KOMET 200/202, KOMET 280/282, KOMET 400/402, KOMET 600/602
Serial number: 8030002001201001 to 8030002991252999 for KOMET 200/202
8030003001201001 to 8030003991252999 for KOMET 280/282
8030004001201001 to 8030004991252999 for KOMET 400/402
8030005001201001 to 8030005991252999 for KOMET 600/602
Year of manufacture: 2012

complies with the essential requirements of the following directive, as far as possible with the scope of delivery (see attachment for information regarding which requirements are met)

2004/108/EG	EMC-directive
2006/42/EG	Machinery directive

The following harmonized standards are applied:

EN 12453: 2005	Industrial, commercial and garage doors and gates – Safety in use of power operated doors – Requirements
EN 12445: 2005	Industrial, commercial and garage doors and gates – Safety in use of power operated doors – Test methods
EN 61508: 2001	Functional safety of electrical/electronic/programmable electronic safety-related systems – Demands on SIL2
EN 60335-1: 2002	Safety of household and similar electrical appliances, part 1 General requirements
EN ISO 13849-1:2008	Safety of machinery. Safety related parts of control systems

Further we declare that the special technical documentation for this partly completed machinery is compiled in accordance with annex VII part B, and we undertake to transmit relevant information to the market surveillance authorities upon request.

The partly completed machinery must not be put into service until it is incorporated into a machinery, which has been declared in conformity with the provisions of the EC Machinery Directive and for which an EC declaration of conformity according to annex II A was issued.

Empowered to draw up the declaration:
ELKA-Torantriebe GmbH u. Co. Betriebs KG, Dithmarscher Str. 9, 25832 Tönning, Germany

Tönning, 02.01.2012

i.V. Guido Christiansen
i.V. Guido Christiansen
Dipl.-Ing. (FH)
Chief Engineer

Attachment

Requirements of annex I of 2006/42/EG which are met. The numbers relate to the chapters of annex I:

1.1.2., 1.1.3., 1.1.5., 1.1.6., 1.2.1., 1.2.3., 1.2.6., 1.3.4., 1.3.8., 1.3.9., 1.5.1., 1.5.6., 1.5.11., 1.7.1. (partially), 1.7.2., 1.7.3., 1.7.4. (partially).

Drawing 1

4.1 Installation information for partly completed machinery

The partly completed machinery must not be put into service until the final machinery into which it has to be incorporated has been declared inconformity with the provisions of the machinery directive.



The safety functions of the controller comply with EN ISO 13849-1:2008 Kat.2PLc/d.



According to EC Directive 2006/42/EG the mains supply has to be equipped with an all-pole circuit breaker.



WARNING!

Danger through voltage!

Danger of an electric shock.

- Only certified electricians (VDE 0100) should connect the controller to the mains supply.



According to DIN EN 12453, for an application with passenger traffic, depending on the type of use and type of activation, suitable safety devices have to be installed additionally, in order to provide the minimum level of protection.

4.2 Declaration of conformity

After the installation an EG- declaration of conformity according to EC- machinery directive 2006/42/EG for the complete system has to be issued by the person responsible for the integration (according to product standard DIN EN 13241-1).

4.3 Name plate

The name plate of the swing gate opener is mounted inside the housing (interior area close to the motor) or at the motor support.

5 Usage

The swing gate openers of series KOMET 200 - 600 are designed for gates moving horizontally and having low wind resistance. For max. width and weight of gate wing see table and diagram below.



When usage is different from the above samples, please contact your supplier.

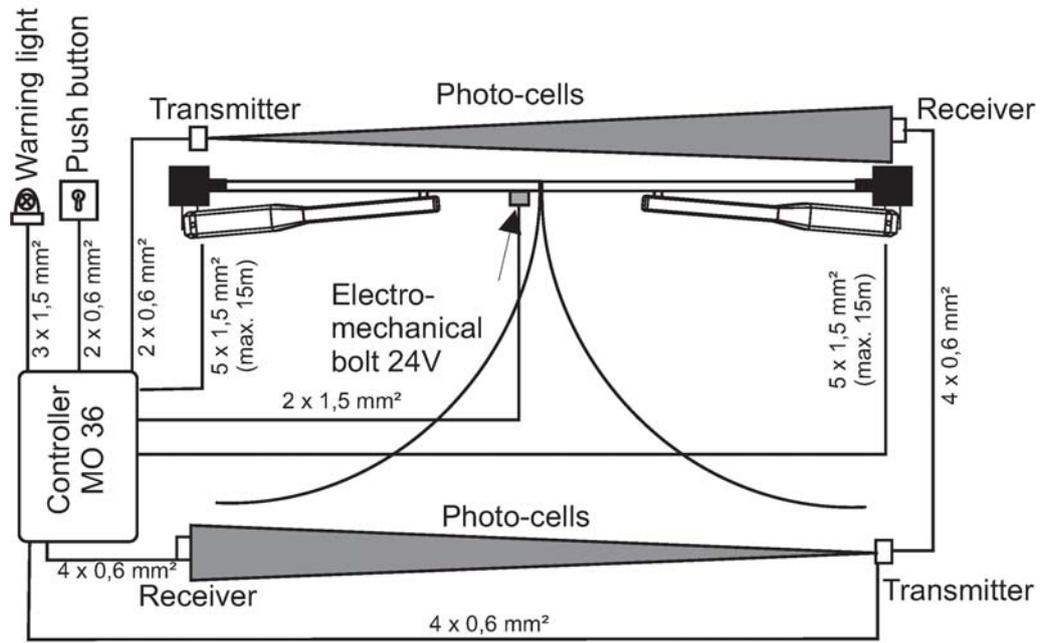
6 Technical Data

	KOMET 200/202 one winged gate/two winged gate	KOMET 280/282 one winged gate/two winged gate	KOMET 400/402 one winged gate/two winged gate	KOMET 600/602 one winged gate/two winged gate
Maximum width of wing *	2.000mm / wing	2.800mm / wing	4.000mm / wing	6.000mm / wing
Maximum weight of wing	200kg	300kg	400kg	500kg
Maximum movement (stroke)	370mm			
Electromagnetic bolt	no	no	yes	yes
Emergency release	from top and bottom			
Running time (opening angle 90°) (each wing) **	stroke 270mm = approx. 12s stroke 350mm = approx. 16s			
Opening angle max. ***	120°			
External limit stoppers at opened positions required ****	yes	no	yes	yes
External limit stoppers at closed positions required ****	yes	no	yes	yes
Limit stoppers at opened and closed positions	optional	yes	no	no
Power supply	230V, 50Hz			
Operating voltage	24Vdc			
Duty cycle	50%			
Soft-Start and Soft-Stop	yes, with ramp function			
Controller, separately	MO 36 (175x260x100mm, WxHxL)			
Traffic light	Module (optional)			
Safety contact profile	Separately for OPEN and CLOSE			
Weight	19kg / 34kg	20kg / 35kg	19kg / 34kg	24kg / 44kg
Degree of protection	IP 44			
Temperature range	-20°C up to +70°C			
Maintenance	The maintenance intervals must be decided individually as they are dependent on the frequency of use. We recommend maintenance at least once every 12 months.			

Table1

- * gates with low wind resistance
- ** depending on the installation dimensions (stroke) and the speed level
- *** depending on the installation dimensions
- **** A perfect fixation of the gate in position OPEN and CLOSED is only possible with external stops!

7 Installation example



Drawing 2

8 Installation

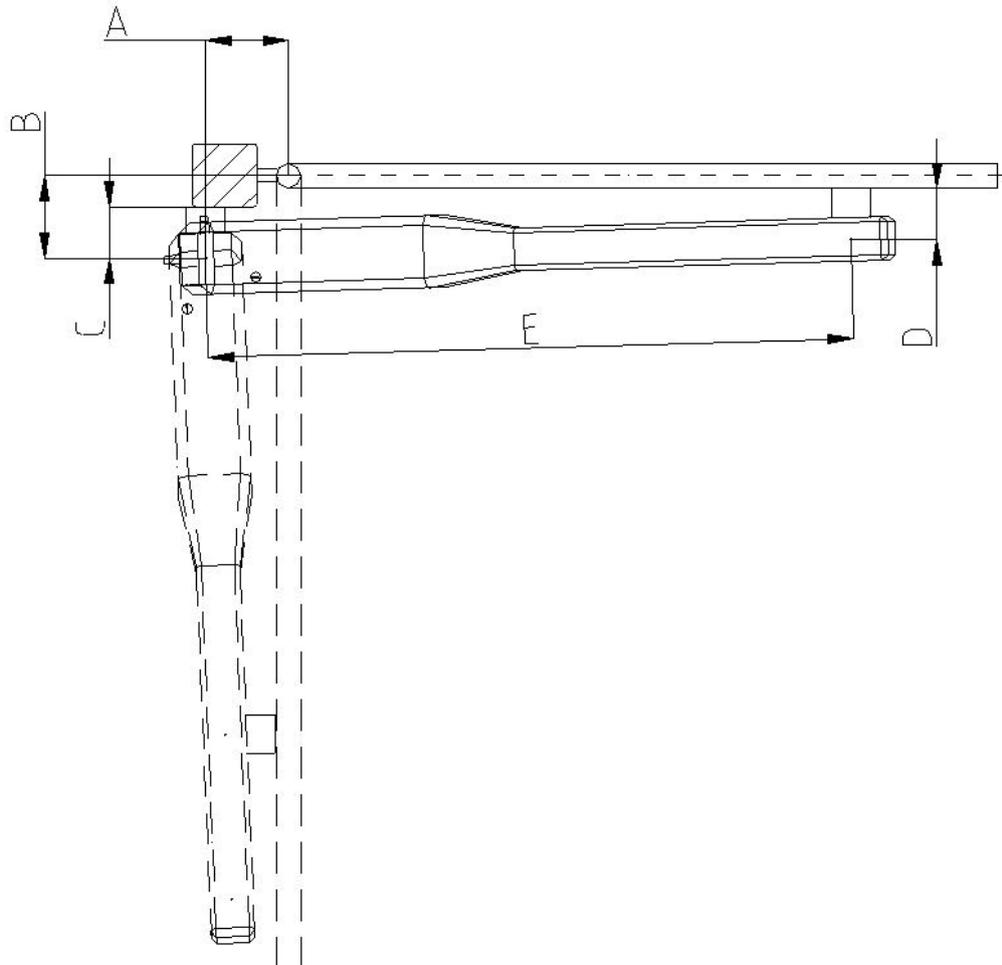
8.1 Installation dimensions (pivot point)



All measurements are quoted in millimetre.



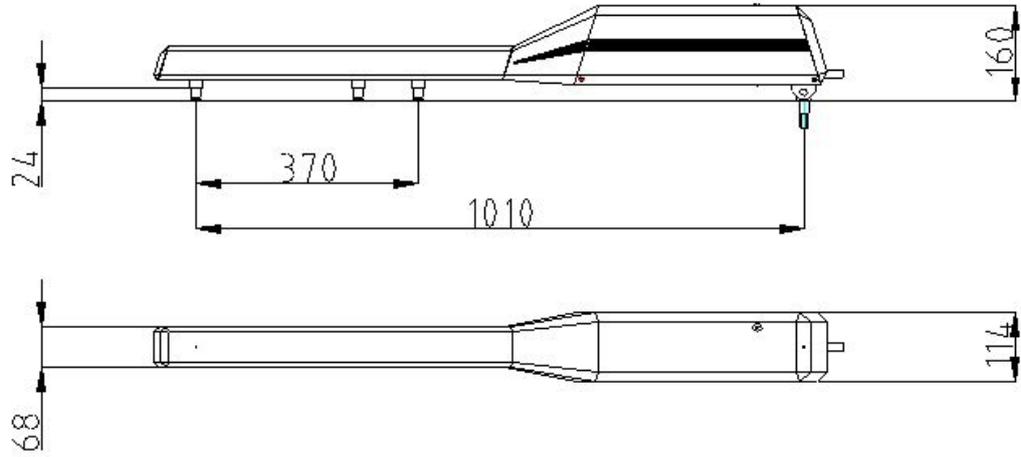
The opener KOMET is for usage left and right.



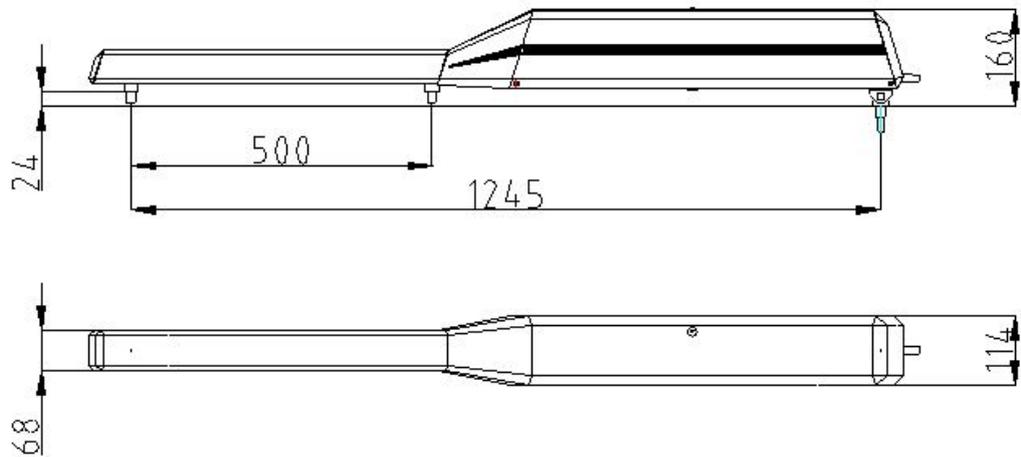
Drawing 3

KOMET 200/280/400

- C = approx. 100mm
D = approx. 80mm
E = 1010mm

*Drawing 4***KOMET 600**

- C = approx. 100mm
D = approx. 120mm
E = 1245mm

*Drawing 5*

Mounting dimensions – Opening angles:

Table of opening angles KOMET 200 depending on measurements A and B.

Opening angle	A / B *	A / B *	A / B *	A / B *	A / B *
90°	140 / 140	150 / 150	160 / 160	170 / 170	180 / 180
95°	140 / 130	150 / 140	160 / 150	170 / 160	180 / 170
100°	150 / 130	160 / 140	170 / 150	180 / 160	-
105°	160 / 130	170 / 140	180 / 150	-	-
110°	170 / 130	180 / 140	-	-	-
115°	180 / 130	-	-	-	-
120°	180 / 120	-	-	-	-

*Table 2 - (*All measurements are quoted in millimetre.)*

Table of opening angles KOMET 280 depending on measurements A and B.

Opening angle	A / B *	A / B *	A / B *	A / B *
90°	150 / 150	160 / 160	170 / 170	180 / 180
95°	150 / 140	160 / 150	170 / 160	180 / 170
100°	160 / 140	170 / 150	180 / 160	
105°	160 / 130	170 / 140	180 / 150	-
110°	170 / 130	180 / 140	-	-
115°	180 / 130	-	-	-
120°	180 / 120	-	-	-

*Table 3 - (*All measurements are quoted in millimetre.)*

Table of opening angles KOMET 400 depending on measurements A and B.

Opening angle	A / B *	A / B *	A / B *
90°	160 / 160	170 / 170	180 / 180
95°	160 / 150	170 / 160	180 / 170
100°	170 / 150	180 / 160	-
105°	170 / 140	180 / 150	-
110°	180 / 140	-	-
115°	180 / 130	-	-
120°	180 / 120	-	-

*Table 4 - (*All measurements are quoted in millimetre.)*

Table of opening angles **KOMET 600** depending on measurements A and B.

Opening angle	A / B *	A / B *
90°	225 / 225	240 / 240
95°	225 / 210	240 / 225
100°	225 / 195	240 / 210
105°	225 / 180	240 / 195
110°	240 / 180	-
115°	240 / 165	-
120°	240 / 150	-

Table 5 - (*All measurements are quoted in millimetre.)



The measurement E for KOMET 200 / KOMET 280 / KOMET 400 is 1,010mm each, for the KOMET 600 it is 1,245mm. To exceed these measurements may result in a disruption of operation. To go below these measurements, reduces the opening angle.

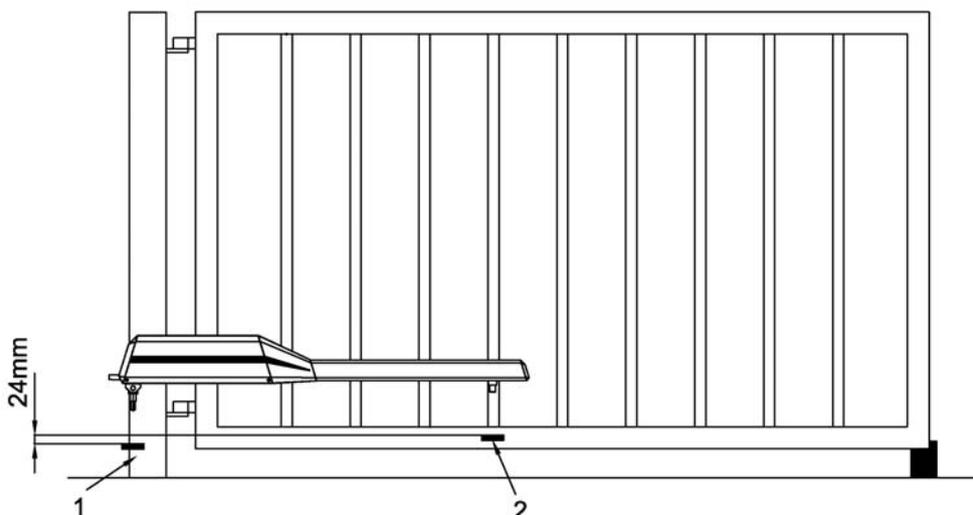


Please strictly observe the approved measurements. This is necessary for an optimal operation. In case these measurements cannot be observed, please send us your dimensional drawing for checking.



External stops for gate OPEN and gate CLOSED are mandatory for the gate openers KOMET200, KOMET 400, and KOMET 600.

8.2 Installation dimensions (elevation)



Drawing6

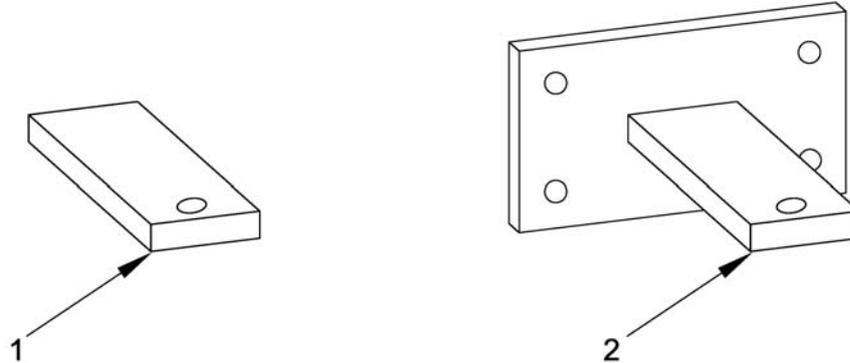
- 1 Mounting support P
- 2 Mounting support T 24mm higher than mounting support P

Please make sure, that the gate wings can be moved easily and that the axis of rotation is in a completely vertical position. Check that there is enough room for the opener behind the opened gate.



WARNING! The controller needs to be disconnected while welding is performed on the gate.

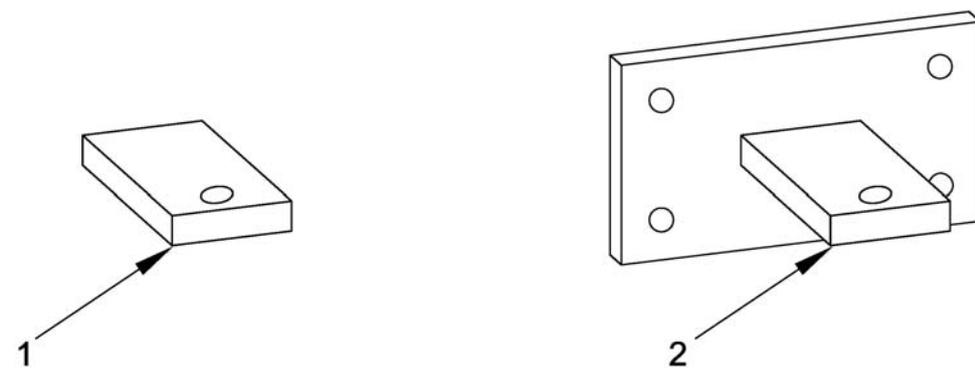
8.3 Installation at the gate and gate post



Drawing 7

- 1 Mounting support P
- 2 Mounting support P with base plate (on side)

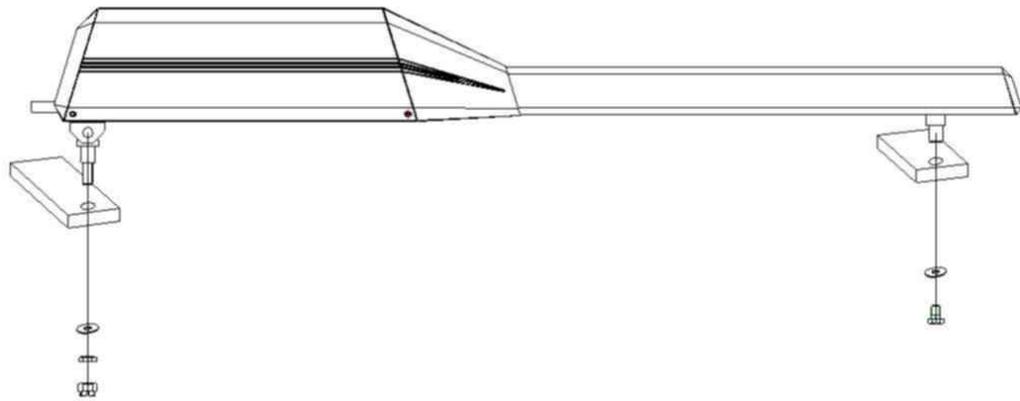
1. Secure the mounting support P on the gatepost at a height above the ground in which the mounting support T can also be secured properly on the gate. Welding seams have to be matched to the metal sheet thickness of the mounting support P.
2. Close the gate so that it presses against the end stopper. Determine the connection point of the mounting support T at the gate. Make sure that the distance to the gate is sufficient, so that the gate opener does not touch the gate later during movement. Using a water level determine the correct height. Keep the necessary distance "E" between the mounting supports P and T.



Drawing 8

- 1 Mounting support T
- 2 Mounting support T with base plate (on side)

3. For steel gates: connect the mounting support T to the gate using tack welding. If necessary weld the mounting support to a reinforcement plate (on site) and connect the reinforcement plate to the gate using tack welding. For other gates: weld the mounting support to a support plate (on site, approx. 120x80x15mm) and connect the support plate to the gate (e.g. using screws).



Drawing 9

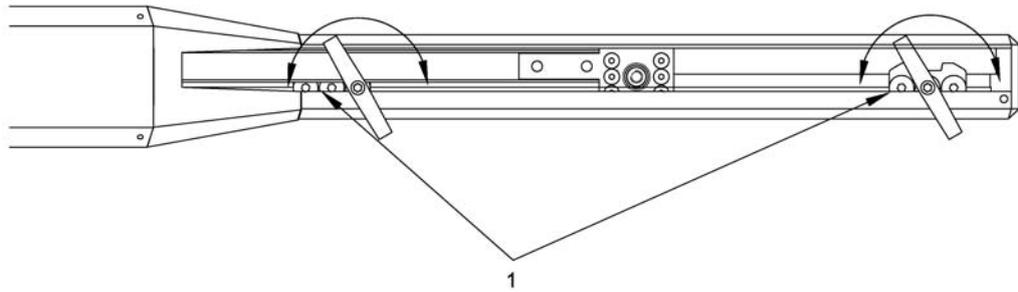
4. Fit the gate opener with the joint bolts into the mounting supports P and T at gatepost and gate. Release the opener as described under 9. page 22. Now open and close the gate manually. Check if the gate can be moved the complete distance between the end positions easily. Remove the gate opener. Complete the final connection of the mounting supports P and T. Grease the drill hole of the mounting support P slightly. Fit the gate opener to the gate again. Tighten the screw at the gatepost, but not too tight. Secure the fixing nut using the stop nut. Connect the joint bolt (gate) to the mounting support T using the Screw.
5. All electrical connections should be according to the description for the MO 36control box 10 - Controller MO 36.
6. Now close the gate and engage the gate opener. Continue with 10.3 - Programming MO36.).
7. Install now the periphery equipment like key switches, photo-cells etc. and lay the electrical cabling according to the installation example on page 13. Make sure that the cable cannot be tensed or damaged by the gate or the moving gate opener.

8.4 Adjusting of the internal stops (KOMET 200 and 280)



If external stops are installed, make sure that the gate wing pushes against the external stop with slight force only.

1. Disengage the emergency release as described under 9 - Emergency release .
2. Move the gate wing/s to an opening angle of approx. 45°.
3. Reengage the emergency release.
4. Loosen the screw at the mounting support T.
5. Lift the narrow end of the gate opener out of the mounting support T.
6. Three counter sunk screws at the end of the arm and another three between the aluminium arm and the push rod can now be seen from below (these are the internal stops). Loosen these six screws. Move the internal stops closer to the driver (joint bolt) using the socket wrench. Tighten the screws slightly, so that the internal stops cannot shift accidentally on their own.



Drawing 10

- 1 Internal stops
7. Replace and refit the opener to the mounting support T. Now connect the opener/s to the terminals of the controller MO 36. Connect the main wing to the terminal **FAHR** and the pedestrian wing to the terminal **GEH**. For one winged gates connect the wing to the terminal **FAHR**.
8. Connect to the mains.



ATTENTION! During the next steps the gate wing will be moved electrically. Make sure the range of movement is free from obstacles. During learning the safety devices can react differently from the normal operation.

9. Press the button **LERN** on the controller for approx. 2 seconds. The display shows **P !**. Press the button **LERN** again. The display now shows **!F**.
10. Now select the number of gate wings. Push button **BT** until it displays **2F**. Confirm the displayed **2F** (for two wings) with the button **LERN**. The display shows **HR** (manual operation).
11. Now you can move each gate wing separately into the end positions in slow mode (dead man's function). The main wing moves into direction OPEN only as long as button **BT** is pressed. When button **BT** is pushed again, the wing moves into direction CLOSED. The pedestrian wing moves into direction OPEN only as long as button **BTG** is pressed. When button **BTG** is pushed again, the wing moves into direction CLOSED.
12. Now move the main wing with button **BT** into the end positions OPEN and CLOSED. Now move the pedestrian wing with button **BTG** into the end positions OPEN and CLOSED. The internal end stops are now adjusted but not fixed.
13. Move the gate wings with button **BT** and **BTG** into position „half OPEN“.



ATTENTION! Do not give any further commands to the controller now.

14. Remove the plug from the 5-pin connection **FAHR** and **GEH**.
15. Loosen the screw at the mounting support T. Lift the narrow end of the gate opener out of the mounting support T.
16. The three counter sunk screws from the internal stop **must be tightened** by allen key.
17. Replace and refit the opener to the mounting support T.
18. Now connect the gate opener to the controller MO36.



ATTENTION! The gate moves automatically during the next installation step.

19. During the following step the controller learns the running distance of the (one or two) gate wings. Push the button **LERN**. The controller sends the wing/wings into direction OPEN to the end stop and then into direction CLOSED to the end stop. The display shows P2.
20. The gate is now in position CLOSED. Should the gate now be in position OPEN, the wires 4 and 5 of the motor connection cable at the 5-pin connection have to be switched. Then repeat by pressing button **BTG** once (1x - display **P !**) and pressing button **LERN** three times (3x - display **!F**, **!R** and **!U**).
21. Push the button BT until **PP** is displayed. Confirm with button **LERN**.
22. Continue with paragraph - Programming MO36.

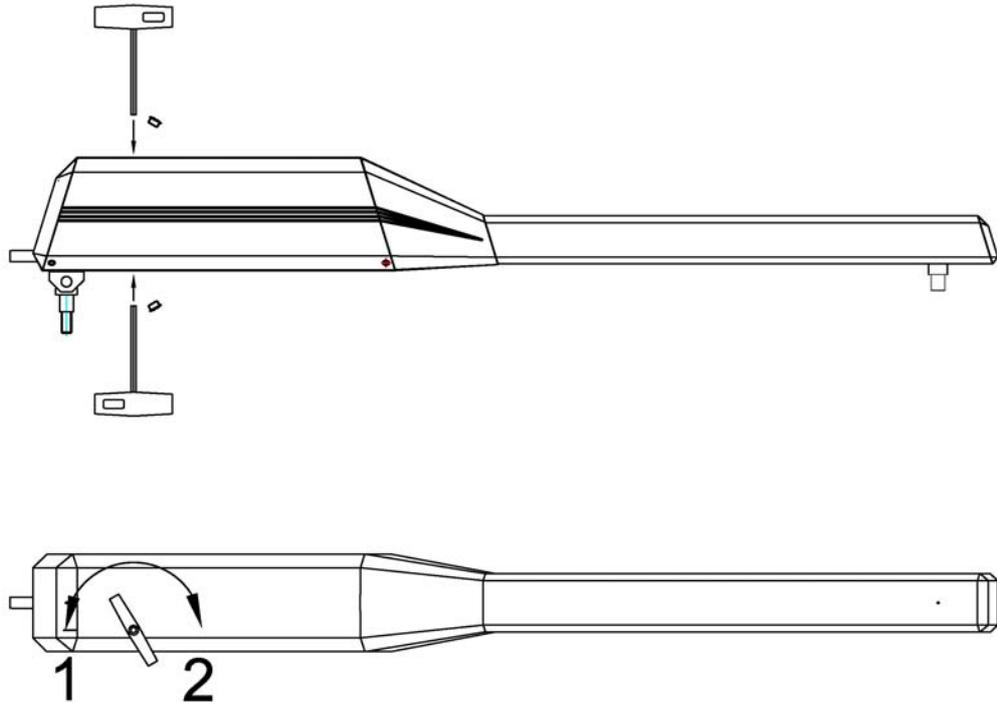


Shall the end position of one or both gate openers be changed, proceed as described under 8.4 - Adjusting of the internal stops (KOMET 200 and 280). You may also loosen the end stops separately and thus adjust them.

9 Emergency release

9.1 Emergency releasing

Depending on the accessibility remove either the plastic cap on top or the one at the bottom of the gate opener. Place the wrench into the opening until it engages into the locking device (hexagon socket).



Drawing 11

- | | |
|---|---------|
| 1 | release |
| 2 | engage |

When using the top emergency release, turn the wrench approx. ½ turn anticlockwise. When using the bottom emergency release, turn the wrench approx. ½ turn clockwise. The gate wing can now be moved freely.

The display in the controller shows **EF** (EF = message from the controller MO 36 that at least one opener is disengaged).

9.2 Engaging of emergency release

Insert the wrench into the emergency release. Turn the wrench approx. ½ turn clockwise. The overcoming of the dead point must be clearly noticeable (when engaging the emergency release at the bottom, turn the wrench anticlockwise). In case the wrench can only be moved slightly out of its original position, move the gate wing until the teeth of the gear interconnect and the wrench can be moved approx. ½ turn.

When the emergency release is correctly engaged, the display on the controller stops showing **EF**.

At the next use of BT the gate wing moves into position OPEN for synchronizing. At the following use of BT the opener moves in normal mode.

10 Controller MO 36

10.1 Electrical installation

The leads must be inserted from below. For gates with two wings a minimum cross section [mm²] of the lead is necessary, which is determined by the length of the lead between the 2.opener and the controller.
Cross sections selected too small will have adverse effect on the motor performance.

For the gate openers (with controller MO 36) the following lead dimensions are required:

Cross section: **5 x 1,5mm²** up to **15m** distance

Cross section: **5 x 2,5mm²** up to **20m** distance

Power supply for the controller: 230Vac, 50Hz, single Phase

Connection: By fixed wiring and main switch (on site) or flexible wiring with cable stress relief device according to the European standards.



The provided motor cable is only suitable for the short way to the connection box; a mechanical protection should be used where applicable. For the longer connection distance between gate opener and controller please use a suitable cable. Here also use a mechanical protection (conduit) if applicable.



REMARK! For the connection of the motor lead to the controller MO 36 use solely leads with flexible conductors, like e.g. ÖLFLEX ROBUST 210.

Cable configuration:

Mark	Contacts on the MO 36
1	GND
2	IMP
3	I+
4	M-
5	M+

Table 6

10.2 Connections

10.2.1 Connection plan of the controller MO36



Each safety contact strip terminal which is not used has to be linked to an 8.2 k Ω resistor. Each photo-cell and stop terminal which is not used has to be linked to a jumper.

Fehler! Es wurde kein Dateiname angegeben.

Drawing 12

10.2.2 Input terminals

Input	Description	Connection	Function
BT	n.o. contact	1 pin	Push button (serial switching)
BTG	n.o. contact	1 pin	Push button for pedestrian opening
BA	n.o. contact	1 pin	Push button OPEN
BZ	n.o. contact	1 pin	Push button CLOSE
Ground	-	1 pin	Mutual ground BT, BTG, BA and BZ
BS	n.c. contact	1 pin	Push button STOP
Ground	-	1 pin	Ground for STOP
LSA LSI	Each max. 6 photo-cells with n.c. contact and terminating resistor 1k Ω	2 pin	Photo-cells for installation outside (LSA) and inside (LSI) (according to EN954-1 category 2)
Ground	-	1 pin	Mutual ground LSA and LSI
SLA SLZ	Safety contact profile: resistor detection n.c. contact with 8.2k Ω resistor (serial or parallel with n.o. contact with 8.2 k Ω)	2 pin	Integrated detectors with testing function (according to EN954-1 category 2) for safety contact profile for gate OPEN (SLA) and CLOSE (SLZ)
Ground	-	1 pin	Mutual ground SLA and SLZ
IMPg	pulser	See motor	Pulser for pedestrian wing
IMPf		See motor	Pulser for main wing
SU		Plug socket	Connection for timer module ASU2
Funk		Plug socket for receiver EKX10F or receiver with decoder	Integrated receiver for BT, BTG and MULTI
Netz (L1, N and PE)	-	3 pin	Power supply 230Vac – L1, N and PE

Table 7

10.2.3 Buttons on the controller

Mark	Function
BT	Same function as external button BT
BTG	Same function as external button BTG
LERN	Starting the learning mode

Table 8

10.2.4 LEDs on the controller

Mark	Colour	Function	Desired value
Vp	Yellow	Lights when connected to main power	ON
SLA	Red	Lights when safety contact profile SLA active	OFF
SLZ	Red	Lights when safety contact profile SLZ active	OFF
BT	Green	Lights when the contact is closed	OFF, when pushing button = ON
BTG	Green	Lights when the contact is closed	OFF, when pushing button = ON
BA	Green	Lights when the contact is closed	OFF, when pushing button = ON
BZ	Green	Lights when the contact is closed	OFF, when pushing button = ON
BS	Green	Lights when the contact BS is closed	ON
LSA	Green	Lights when LSA is interrupted	OFF
LSI	Green	Lights when LSI is interrupted	OFF
Display	Red	2 x 7-segment-display	OFF

Table 9

10.2.5 Output terminals

Output	Connection	Corresponds to:
Motor pedestrian wing and IMP _g	5 pin	Connection for 24Vdc motor and pulser for the pedestrian wing
Motor main wing and IMP _f	5 pin	Connection for 24Vdc Motor and pulser for the main wing or for one-winged gates
SCHLOSS	3 pin	Connection for electromagnetic bolt or magnetic lock with 24Vdc (max. 1A)
WARN	2 pin	Potential-free contact for warning light 230Vac /max. 60W
MULTI	2 pin	Potential-free contact for multi-functional relays(230Vac / max. 60W)
Uext	3 pin	24Vdc and 12Vdc, mutual ground terminal, stabilised direct voltage, together max. 300mA, ground terminal is connected with controller ground
LS-TEST	1 pin	24Vdc for photo-cell transmitter
PE	1 pin	Earth
AMPEL	2 pin	Socket for traffic light module AMO34A red / green

Table 10

10.3 Programming MO36

For programming and to set operating parameters, use the two-digit 7-segment display and the buttons BT, BTG and LERN.

At least the following sequences have to be learned as basic configuration:



- P1** - Learning of running distance
- P2** - Selecting of force and speed
- PC** - Pressure relief of electromechanical bolt (mandatory when using optional internal blocking)

10.3.1 Learning sequence

During normal operation the display is off. **The learning sequence is activated by pushing the button LERN for approx. 2s.** The display shows **P. 1**. The sequence 1 is pre-set. With the button **BT** you can move on to the next sequence **P.2**, **P.3** etc. With the button **BTG** you can move back to the last sequence. When the required sequence is displayed it has to be activated with the button **LERN**.

Sequence	Function
P 1	• Selection one wing / two wings

	<ul style="list-style-type: none"> • Adjusting of end stops • Learning of safety contact profiles and photo-cells connected • Learning of running distance
P2	Adjusting of force and speed
P3	Adjusting of time lag of the pedestrian wing during closing
P4	Adjusting of time lag of main wing during opening
P5	<ul style="list-style-type: none"> • Learning of radio remote control codes for BT, BTG and MULTI • Deleting of radio remote control codes for BT, BTG and MULTI
P6	Automatic closure for complete opening (for both wings) <ul style="list-style-type: none"> • activating / deactivating • change stay-open time
P7	Automatic closure for pedestrian wing <ul style="list-style-type: none"> • activating / deactivating • change stay-open time
P8	Selecting of warning prior to opening and closing
P9	Selecting of photo-cell function
PA	Activating / deactivating photo-cell testing
Pb	Activating / deactivating lockage function for photo-cells
PC	Selecting pressure relief of electromagnetic bolt
Pd	Selecting wind blast suppression
PE	Selecting mode of multi-functional relay
PF	Return to original settings
PP	Saving of data and returning to regular mode

Table 11

10.3.1.1 Sequence P1: Learning of the running distance

When sequence **P1** has been activated, it has to be selected first between gates with one (1F) or with two (2F) wings using **button BT**. Then confirm the selection with **button LERN**.

Display	Effect / Function
1F	To operate gates with one wing
2F	To operate gates with two wings

Table 12

Then **HA** is displayed. The gate wings now can be operated by **dead man's motion using buttons BT or BTG** to adjust the internal mechanical end. **BT is used for the main wing and BTG for the pedestrian wing**. The first direction is always OPEN.



ATTENTION! During learning the safety devices may act different from the regular operation. Please ensure that no people are in the danger area during learning.

After **adjusting the end stoppers**, push the **button LERN** to continue: The controller tests the safety contact strips and the photo-cells. It learns the type of the safety contact strips (8.2 kΩ) and the number of connected photo-cells. Only when this photo-cell testing was successful, additional photo-cell tests can be carried out during future operation.

Gates with one wing:	During learning of the running distance the wing opens first and then closes.
Gates with two wings:	During learning of the running distance the pedestrian wing opens, the main wing opens, the main wing closes and pedestrian wing closes.

In both cases the wings move until they hit the stoppers at the closed position. During the learning of the running distance the pressure relief of the electromechanical bolt is not in function. The electromechanical bolt is being activated during each wing movement. After the learning of the running distance, returning to the main sequence follows automatically.



Remark: After adjustment of the end stoppers, the wings should not be in either end position but at least 50cm before. The first movement is into direction open.

10.3.1.2 Sequence P2: Adjusting of force and speed

The force and speed can be adjusted for each wing separately, and for opening and closing separately. When sequence **P2** is activated by button LERN an additional selection menu for force and speed opens. **With button BT you may move to different points of the selection menu.**

Subsequence	Function
<i>F 1</i>	Force for opening of main wing (2-winged gates) / the wing (1-winged gates)
<i>F 2</i>	Force for closing of main wing (2-winged gates) / the wing (1-winged gates)
<i>F 3</i>	Force for opening of pedestrian wing. No function with 1-winged gates.
<i>F 4</i>	Force for closing of pedestrian wing. No function with 1-winged gates.
<i>S 1</i>	Speed for opening of main wing (2-winged gates) / the wing (1-winged gates)
<i>S 2</i>	Speed for closing of main wing (2-winged gates) / the wing (1-winged gates)
<i>S 3</i>	Speed for opening of pedestrian wing. No function with 1-winged gates.
<i>S 4</i>	Speed for closing of pedestrian wing. No function with 1-winged gates.

With the **button LERN** the selected point can be activated. The present value for force (F = force) or speed (S = speed) is displayed. Possible values are **0 1** (for minimum force) up to **9 9** (for maximum force) or **0 1** (for minimum speed) up to **0 8** (for maximum speed). With **button LERN** the values may be increased, with the **button BTG** they can be decreased. Return to the learning sequence using button LERN.



ATTENTION! The maximum force (F1 - F4) has to be adjusted according to the relevant gate opener using the learning sequence. If a force higher than shown below is adjusted, the motor will not be able to reverse on obstacle.

Swing gate opener	Adjustment range
KOMET 200/202	F1 – F4 = max. 35
KOMET 280/282	F1 – F4 = max. 35
KOMET 400/402	F1 – F4 = max. 45
KOMET 600/602	F1 – F4 = max. 55

Table 14

10.3.1.3 Sequence P3: Time lag of the pedestrian wing (closing)

When sequence **P3** is activated by **button LERN**, the present value for the time lag of the pedestrian wing during closing is displayed. Possible values are **0 0** (for 0s) up to **0 9** (for 9s). The value can be **increased using button BT** and **decreased using button BTG**. Return to the learning sequence using button LERN.



Remark: When a time lag is selected for gates with one wing, it will not be in effect.

10.3.1.4 Sequence P4: Time lag of the main wing (opening)

When sequence **P4** is activated by **button LERN**, the present value for the time lag of the pedestrian wing during closing is displayed. Possible values are **0 0** (for 0s) up to **0 9** (for 9s). The value can be **increased using button BT** and **decreased using button BTG**. Return to the learning sequence using **button LERN**.



Remark: When a time lag is selected for gates with one wing, it will not be in effect.

10.3.1.5 Sequence P5: Learning and deleting of code for radio remote control

To learn a code the transmitter has to be operated. The code will then be stored. When sequence **P5** is activated with the **button LERN**, an additional selection menu is displayed for selecting the code. **Move to the next point using button BT.**

Sub-sequence	Function
[1	Radio remote control code for BT can be learned or deleted
[2	Radio remote control code for BTG can be learned or deleted

[3	Radio remote control code for MULTI can be learned or deleted
Next	Return to main sequence

Table 15

Sub-sequence is activated with button LERN. The display shows:

Display	Corresponds to:
- -	The selected radio remote control code is deleted and another can be learned.
o o	The selected radio remote control code is already stored and can be overwritten or deleted.

Table 16

To erase the radio remote control code, press and hold the button BT and additionally push the button LERN. The radio remote control code is erased. Return to the subsequence follows automatically. If only the button LERN is pushed, then return to the subsequence follows immediately without erasing the code.

Radio remote control signal: Receiving of a learned radio remote control signal is displayed through lighting of the right display dot.

10.3.1.6 Sequence P6: Automatic closure for complete opening

When sequence **P6** is activated by **button LERN**, the present value for stay-open time for complete opening is displayed. Possible values are -- (not activated), 01 up to 299 (for 1s -299s). The value can be **increased using button BT** and **decreased using button BTG**. The decimal dots of the display are each equal to 100 (one lit dot = 100 / two lit dots = 200).

Display(example)	Corresponds to:
--	Automatic closure is deactivated.
23	Automatic closure is activated. Stay-open time 23 seconds.
2.3	Automatic closure is activated. Stay-open time 123 seconds.
2.3.	Automatic closure is activated. Stay-open time 223 seconds.

Table 17

Return to the learning sequence using **button LERN**.

When using automatic closure both wings close automatically after the learned stay-open time has elapsed. The stay-open time starts elapsing when the last wing has reached the position OPEN.

- When contact BS is opened, the automatic closure function is blocked.
- When the stay-open time has elapsed and the safety contact profile for direction CLOSE (SLZ) is currently activated, the gate remains open. The elapsed stay-open time will not be repeated. When the SLZ is not activated anymore and the stay-open time has elapsed, the warning time prior to closing starts.
- When the automatic closure function is blocked it will be reactivated with a new signal (BA or BT).
- When the lockage function for the photo-cells is activated, the automatic closure function is blocked, as long as an obstacle is present between the photo-cells (see sequence PB).
- When the gate hits an obstacle during closing and reversing is activated through SLZ, the gate opens. When automatic closure is activated and the obstacle is not removed, the gate will try to close twice. After hitting the obstacle for the second time the gate will reverse for a short distance and stop.- The counting will be erased when using BT, BA, or BZ.

10.3.1.7 Sequence P7: Automatic closure for pedestrian wing

When sequence **P7** is activated by **button LERN**, the present value for stay-open time for the pedestrian wing is displayed. Possible values are -- (not activated), 01 up to 299 (for 1s - 299s). The value can be **increased using button BT** and **decreased using button BTG**. The decimal dots of the display are each equal to 100 (one lit dot = 100 / two lit dots = 200).

Display(example)	Corresponds to:
- -	Automatic closure is deactivated.
23	Automatic closure is activated. Stay-open time 23 seconds.
2.3	Automatic closure is activated. Stay-open time 123 seconds.
2.3.	Automatic closure is activated. Stay-open time 223 seconds.

Table 18

Return to learning sequence using **button LERN**.

When using automatic closure the pedestrian wing closes automatically after the learned stay-open time has elapsed. The stay-open time starts elapsing when the wing has reached the position OPEN.

- When contact BS is opened, the automatic closure function is blocked.
- When the stay-open time has elapsed and the safety contact profile for direction CLOSE (SLZ) is currently activated, the gate remains open. The elapsed stay-open time will not be repeated. When the SLZ is not activated anymore and the stay open time has elapsed, the warning time prior to closing starts.
- When the automatic closure function is blocked it will be reactivated with a new signal (BA or BT).
- When the lockage function for the photo-cells is activated, the automatic closure function is blocked, as long as an obstacle is present between the photo-cells (see sequence PB).
- When the gate hits an obstacle during closing and reversing is activated through SLZ, the gate opens. When automatic closure is activated and the obstacle is not removed, the gate will try to close twice. After hitting the obstacle for the second time the gate will reverse for a short distance and stop. The counting will be erased when using BT, BA, or BZ.

10.3.1.8 Sequence P8: Warning prior to opening and closing

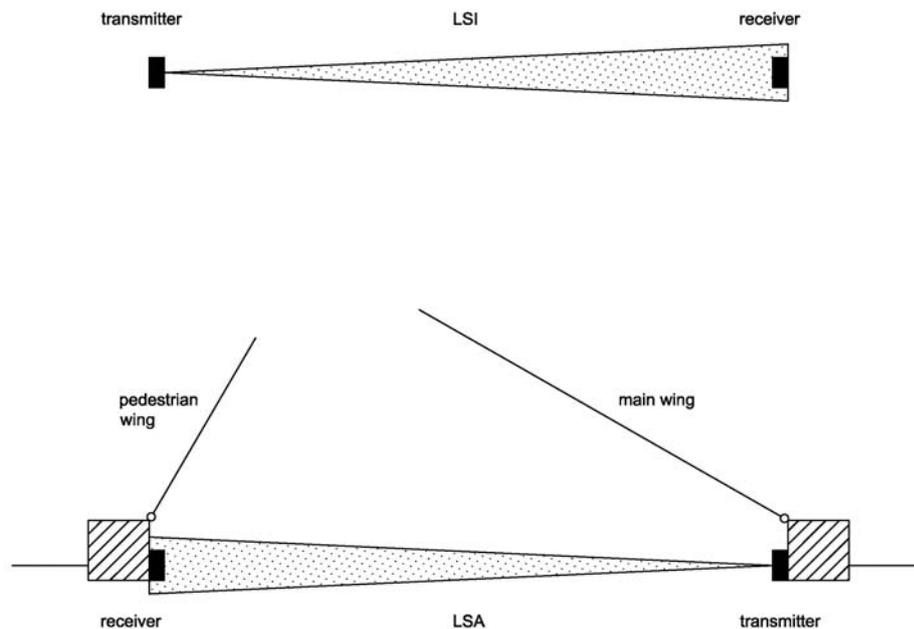
When sequence **P8** is activated by **button LERN**, the present value for warning time (opening and closing) is displayed. With the **button BT** the value can be selected (see table). Return to the learning sequence using **button LERN**. The warning light is only active, when a gate wing is moving and during warning prior to opening and closing.

Display	Warning time before opening	Warning time before closing
00	No warning time	No warning time
04	No warning time	4 seconds warning time
40	4 seconds warning time	No warning time
44	4 seconds warning time	4 seconds warning time

Table 19

10.3.1.9 Sequence P9: Photo-cell function

When sequence P9 is activated by button LERN, the present selection for the photo-cellfunction is displayed. With the button BT the value can be selected (see table). Return to the learning sequence using button LERN.



Drawing 13

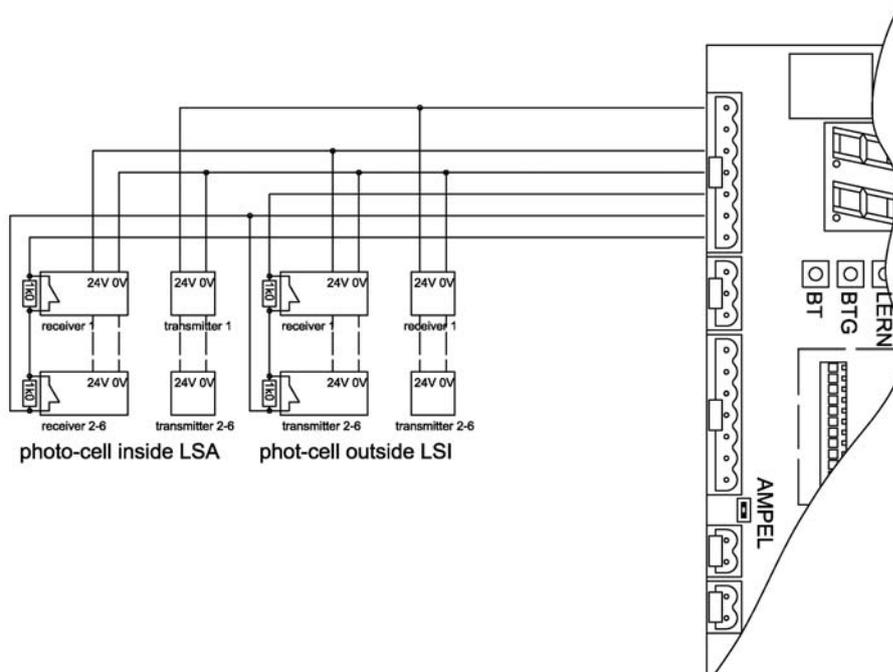
Function	Photo-cell	Gate not moving	Gate opens	Gate closes
L I	LSI	Remains not moving	Stops when interrupted, opens when free again	Stops when interrupted, opens when free again
	LSA	Remains not moving	Stops when interrupted, opens when free again	Stops when interrupted, opens when free again

L2	LSI	Remains not moving	Stops when interrupted, opens when free again	Stops when interrupted, closes when free again
	LSA	Remains not moving	Stops when interrupted, opens when free again	Stops when interrupted, closes when free again
L3	LSI	Only closing allowed	Stops when interrupted, opens when free again	No effect
	LSA	Only opening allowed	No effect	Stops and opens immediately

Table 20

10.3.1.10 Sequence PA: Photo-cell testing

Prior to every gate movement a photocell test may be performed. The test consists of two phases. During the first phase the supply of the transmitters is switched off. The controller expects within the next 2.5 s that the receiver reports an obstacle. During the second phase the supply of the transmitter is switched on again. The controller expects the receiver to report no obstacle any more. Only after this procedure the gate can move. If an error occurs in the first phase, the photocell (receiver) is damaged. The gate will not move. An error message is given through the display. If an error occurs in the second phase, the controller interprets this as a real obstacle. The gate will not move. No error message is given. You may connect and test each (LSI and LSA) maximum 6 pairs of photocells with the controller MO 36. Therefore add all n.c. relay contacts of the receivers in serial. Parallel to each relay contact you must add a **1kOhm resistor** (resistors are needed only when photocell test is used).



Drawing 14

i **ATTENTION!** The MO 36 must learn how many photocells are connected to it. Activate the test by setting PA = ON and run the learning of the running distance P1. **After this please check every single photocell for proper function.**

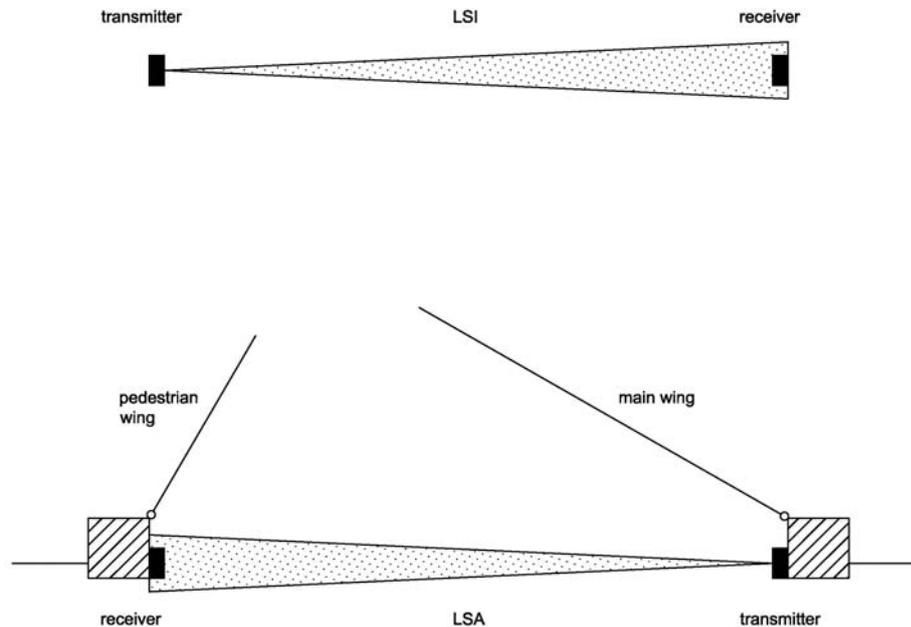
i **REMARK:** When a faulty photo-cell is detected during photo-cell testing or when an obstacle is present within the photo-cell, the gate can be opened and closed in emergency mode (dead man's function).

When sequence **PA** is activated by **button LERN**, the present selection for the photo-cell testing is displayed. With the **button BT** the value can be selected (see table). Return to the learning sequence using **button LERN**.

Display	Corresponds to:
o F	Photo-cell testing deactivated
o n	Photo-cells, which have past the LS-Test during sequence P1, will execute photo-cell testing also in regular mode.

Table 21

10.3.1.11 Sequence PB: Lockage function for the photo-cells



Drawing 15

When using photo-cells in connection with the automatic closure for both wings, a lockage function is possible. To activate this function use the learning sequence.

- The lockage function is only activated when the gate is opened.
- When the gate reaches the end position OPEN, the lockage function is initialised. This means: when a vehicle passes through the gate from the outside, a signal from LSA (photo-cell outside) blocks the automatic closure function. Only the signal from LSI (photo-cell inside) removes the blocking and starts the stay-open time.
- When a vehicle passes through the gate from the inside, a signal from LSI blocks the automatic closure function. Only the signal from LSA removes the blocking and starts the stay-open time.

When sequence **PB** is activated by **button LERN**, the present selection is displayed. With the **button BT** the value can be selected (see table). Return to the learning sequence using **button LERN**.

Display	Corresponds to:
o F	Lockage function is deactivated.
o n	Lockage function is activated (only working when automatic closure is selected.) When the photo-cell is interrupted, closing of the gate wing / wings is only possible, when the vehicle / person has passed both (LSA and LSI) photo-cells.

Table 22

10.3.1.12 Sequence PC: Pressure relief of electromechanical bolt

When sequence PC is activated by button LERN, the present selection is displayed. With the button BT the value can be selected (see table). Return to the learning sequence using button LERN.

Display	Corresponds to:
S1	Pressure relief for electromagnetic bolt is deactivated.
S2	The gate wing pushes slowly (500ms min., but 1000ms max.) against the end stopper until the selected force is reached.
S3	The gate wing pushes slowly (500ms min., but 2000ms max.) against the end stopper until the selected force is reached.
S4	The gate wing pushes slowly (500ms min., but 90s max.) against the end stopper until the selected force is reached.

Table 23

10.3.1.13 Sequence PD: Wind blast suppression

It can be chosen to either reverse on obstacle immediately, or to reverse after a preset time. When setting a time, a short wind blast or an oscillating gate wing do not result in a stop (and reversal).



ATTENTION! Only use the wind blast suppression, when additional safety devices like photo-cells and safety contact profiles are installed at the gate.

When sequence **PD** is activated by **button LERN**, the present selection is displayed. With the **button BT** the value can be selected (see table). Return to the learning sequence using **button LERN**.

Display	Corresponds to:
U -	No wind blast suppression. The controller immediately reacts on obstacle/wind blast.
U 1 bis U 9	The wind blast suppression equals 1s (for U1) up to 9s (for U9). The controller reacts on obstacle / wind blast only after the selected time 1s (for U1) up to 9s (for U9).

Table 24

10.3.1.14 Sequence PE: Multi-functional relay

The multi-functional relay on the controller is suitable for four different modes. During learning function the relay is inactive.

When sequence **PE** is activated by **button LERN**, the present selection is displayed. With the **button BT** the value can be selected (see table).

Return to the learning sequence using **button LERN**.

Display	Corresponds to:
r 1	Push button mode: The relay is active as long as the controller receives the radio remote control code MULTI.
r 2	Toggle mode: The relay alternates between active and deactive with each radio remote control code MULTI.
r 3	Light pulse mode: The relay is active for 1 second, when BT, FunkBT, BTG, Funk BTG, BA or BZ are pushed.
r 4	3-minute light: The relay is active for 180 seconds, when BT, FunkBT, BTG, Funk BTG, BA or BZ are pushed.

Table 25

10.3.1.15 Sequence PF: Return to original settings

When sequence **PF** is activated by **button LERN**, **r E** is displayed. To return to original settings, **press and hold button BT** and **push button LERN**.

When only **button LERN** is pushed, you return to learning sequence without changing any values. After returning to original settings, the running distance has to be relearned.

10.4 Safety contact profiles for gate open (SLA) and close (SLZ)



Gates with two wings: When a safety contact profile is activated, both motors react.

The controller has two integrated detectors with testing function (according to EN954-1 category 2 for safety contact profiles with 8.2kOhm resistor) for gate OPEN and CLOSE. The status of the safety contact profiles is displayed by red LEDs (SLA and SLZ). When the safety contact profile is activated, the matching LED lights.

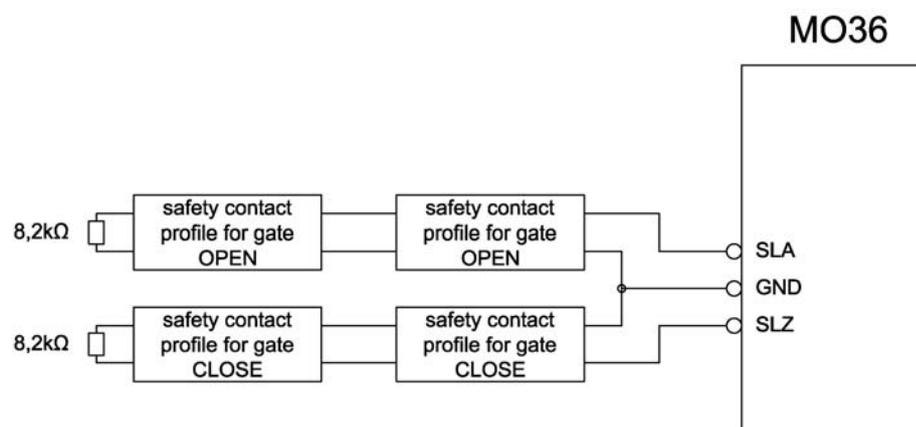
Direction of movement	Function of SLA	Function of SLZ
From stop to open	Only possible in emergency mode	-
From stop to closing	-	Only possible in emergency mode
Opening	Stop and movement for a short distance into direction closed	-
Closing	-	Stop and re-opening

Table 26



Automatic closure: When the gate hits an obstacle during closing and reversing is activated through SLZ, the gate opens. When automatic closure is activated and the obstacle is not removed, the gate will try to close twice. After hitting the obstacle for the second time the gate will reverse for a short distance and stop.- The counting will be erased when using BT, BA, or BZ.

The connection of the n.o. contact with 8.2kΩ ±5% resistor (parallel) or the n.c. contact with 8.2kΩ ±5% resistor (serial) is possible. In case no safety contact profiles are connected, an 8.2kΩ ±5% resistor has to be connected. When using more than one safety contact profile, they can be connected in sequence (see drawing below).



Drawing 16

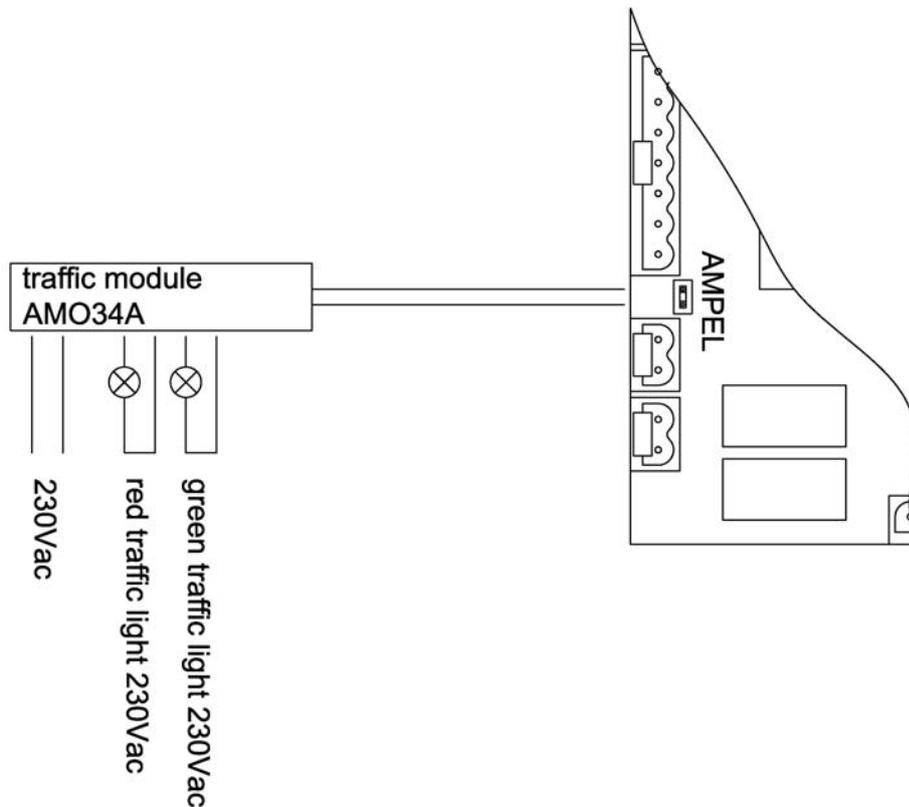
10.5 Additional modules

10.5.1 Timer module ASU2 (optional)

The timer module can be plugged onto the controller. Function: When the timer has reached the set time for open, it sends an OPEN command to the controller. The gate cannot be closed as long as the timer is activated. After the open time has elapsed, the timer sends a CLOSE command to the controller. Note: When the timer sends the CLOSE command, the gate is closed immediately, even when automatic closure is activated.

10.5.2 Traffic light module AMO34A (optional)

Red and/or green traffic lights can be connected to the traffic light module.



Drawing 17

Gate position	Red traffic light	Green traffic light
Gate is completely open	Off	On
Gate is not open (it is moving, partially open, or closed)	On	Off

Table 27

10.6 Power failure

After power failure or disconnecting from mains the position of the wing/wings is unknown to the controller. The controller first works in a starting mode. The wings are moving slowly. A pressure relief of electromagnetic bolt occurs before every movement. The wings close one after the other. When stopping at the end position (closed), the controller recognises this position. The controller continues in its regular mode. Note: Emergency mode is possible during the starting mode.

10.7 Fault diagnosis

An error is shown on the display as a code, when detected by the controller. The following errors are recognised and displayed.

Display	Error
<i>E 1</i>	Photo-cell testing LSI failed.
<i>E 2</i>	Photo-cell testing LSA failed.
<i>E 3</i>	Testing safety contact profile SLA failed.
<i>E 4</i>	Testing safety contact profile SLZ failed.
<i>E 5</i>	Running distance exceeded (gate was stopped). Check end stoppers and re-learn the running distance.
<i>E 6</i>	The power supply limit for the external equipment 12V has been reached. The power source load is too high. The controller is blocked.
<i>E 7</i>	The power supply limit for the external equipment 24V has been reached. The power source load is too high. The controller is blocked.
<i>E 8</i>	The memory data has been lost / is faulty. The controller has to be relearned.
<i>E 9</i>	Error in storing of data on memory. Controller is faulty. Return for repairs.
<i>E A</i>	Error in the redundant detection of BS. Controller is faulty. Return for repairs.
<i>E b</i>	The controller detects one of the motor relays is faulty. Return for repairs.
<i>E C</i>	Measuring amplifier faulty. Return for repairs.
<i>E d</i>	The main wing pulser is faulty. Check the wiring between the opener and controller.
<i>E E</i>	The pedestrian wing pulser is faulty. Check the wiring between the opener and controller.
<i>E F</i>	Power supply Uext has a short cut. OR At least one wing is released. Check the emergency release.

Table 28

10.8 Emergency mode

In case a safety device (LSA, LSI, SLA or SLZ) is faulty, emergency mode is possible. After a warning time of 10 seconds, the gate can be moved in an emergency mode by using BA or BZ (dead man's function). During the warning time as well as during the emergency mode the warning light is flashing. Emergency mode by radio remote control (BT or BTG) is not possible due to safety reasons.



WARNING!

Even when a safety device is faulty, the gate can be moved by BA and BZ. The buttons BA and BZ therefore have to be installed in such a way, that the gate can be seen during movement.



WARNING!

Are external devices -giving a constant signal (e.g. timer) - connected to BA or BZ, these devices can activate the emergency mode and move the gate when a safety feature is faulty or active.



WARNING!

In case the multi-functional relay is used for an additional radio remote channel, which is connected to BA or BZ, the emergency mode can be started by radio remote control. In this case only fixed transmitters should be used in such a way, that the gate can be seen during movement.

10.9 Parameter and Original settings

Constant, not changeable values	
Parameter	Original settings
Time-lag before reactivating motor	500ms
Reversing for a short distance on obstacle	500ms
Time-lag before reversing	200ms
Max. running time limit	500s
Running time reserve during regular mode	10s
Warning time prior to emergency mode	10s

Table 29

Changeable values		
Parameter	Selection range	Original settings
Running distance	Max. 32.000 Impulse	3.000 Impulse
Force	1 - 99	30
Speed	1 / 8	8
Time lag during opening	0s - 9s	2s
Time lag during closing	0s - 9s	5s
Stay-open time for both wings	1s - 299s / OFF	OFF
Stay-open-time for pedestrian wing	1s - 299s / OFF	OFF
Wind blast suppression	0s - 9s	0s
Warning prior to opening	0s / 4s	0s
Warning prior to closing	0s / 4s	0s
Pressure relief of electromagnetic bolt	0s / 1s / 2s / 90s	0s
Multi-functional relay	Push button mode / Togglemode / Light pulse / 3-minute light	Push button
LS lockage function	ON / OFF	OFF
Photo-cell function	L1 / L2 / L3	L1
Number of wings	1 / 2	1
Photo-cell testing	ON / OFF	OFF

Radio remote control code BT	X-Code	- + - + - + - + -
All other radio remote control codes	X-Code	deleted

Table 30

Index

C		N	
Connections	24	Name plate	9
Controller MO 36.....	19, 23	O	
D		Original settings	44
Declaration of incorporation	8	P	
E		Parameter	44
Emergency mode	43	Power failure.....	42
Emergency release	19, 22	R	
F		radio remote control.....	5
Fault diagnosis	42	S	
G		Storing	7
General notes on safety	5	Symbol explanation	4
I		T	
Installation example	13	Technical Data.....	11
Intended use	5	Transportation and storing.....	7
L		Transportation inspection	7
learning sequence.....	27	U	
		Usage	10