

CONTROL UNIT AND CONTROL PANEL BEDIS/KOMBI-BEDIS

General remark

The FFM drive unit can be operated and set as follows:

- Without the control panel:

Via 22/23 the following program positions can be selected NIGHT/EXIT ONLY (EXIT/AUTOMATIC summer) (see wiring diagram in appendix).

The control panel can be used as a temporary programming unit for the settings described. After the control panel has been connected or removed, a cold start (mains supply ON/OFF) must be made during which the programmed values are preserved.

- With control panel:

Via inputs 25 and 26 (patented two-wire bus).

The operation can be locked as follows:

By means of a key-operated switch or a push-button, connected to control panel (Bedis) terminals 3/4.

Control panel (Bedis)

All the functions can be identified and set via the control panel, with the exception of the program position NIGHT (no escape way).

AUTOMATIC (Winter) can only be selected if the minimum width of the escape way has been determined according to chapter 5.5 and if AUTOMATIC (winter) has been enabled.

The numbering of the LED's on the front panel corresponds to their binary value. The number of the softswitch respectively the number of the error is determined by adding the numbers next to the LED's which are lit.

Example: Led's 16/4/1/ are lit $\Rightarrow 16 + 4 + 1 = 21$
 \Rightarrow softswitch/error no. 21

Communication with the control unit KLESE is fail-safe and tamper-proof via a modern bus system (two-wire line).

The control panel operates at four different levels:

1st level	Operating functions
2nd level	Setting functions
3rd level	Programming functions On this level only qualified persons are authorized to change the settings.
4th level	Malfunction indication Error (red)

Operating functions (1st level)

The functions of the program switch positions correspond to the established Gildor standard.

- The operating functions are symbolically represented on the left-hand side of the control panel, next to the LEDs.
- The function which is currently selected and validated is indicated by the permanently lit LED next to it.
- The buttons + or - are used to select the required program switch position. The corresponding LED lights up. The new setting is accepted after approx. 2 seconds.

MANUAL **LED 32**

If this program position is selected via the control panel, then LED 32 flashes shortly and is then extinguished (10% on, 90% off). The door opens and remains in the OPEN position. Entering the code +++ causes the door to be released from the drive unit while LED 32 is lit.

OPEN **LED 16**

The installation opens and remains in the open position.

AUTOMATIC (summer) **LED 8**

Automatic operating mode. All the control elements are active.

AUTOMATIC (winter) **LED 4**

Reduced opening

The reduced opening width must answer the requirements regarding the minimum width of escape ways. Setting according to chapter 5.5.

EXIT **LED 2**

One-way traffic

The control element on the outside operates only as a secondary switching element. Outside opening command only operative if the door is not yet closed.

NIGHT (no escape way) **LED 1**

If this program position is selected via the control panel, then LED 1 flashed shortly and is then extinguished (10% on, 90% off). The door opens and remains in the OPEN position. The program position NIGHT (no escape way) can only be selected via the external key-operated program switch (LED 1 is permanently lit). KEY serves as a valid opening element. The setting on the control panel needs not be changed, provided that NO ESCAPE WAY has been selected by means of the key-operated program switch.

Further possibilities for selecting the program positions:

- The key-operated program switch for the functions NO ESCAPE WAY/ESCAPE WAY (make contract and break contract) is connected via the inputs 21/22/23.
- NIGHT (no escape way) has the highest priority, followed by EXIT and the setting on the control panel.

Setting functions (2nd level)

On the right-hand side of the control panel, the abbreviations of the setting functions are represented. The required function is selected with the + or - key.

The function is activated by pressing both buttons (+ and -) at the same time. The respective display flashed for the setting functions. The flashing frequency is an indication of the regulated value (high frequency = high speed/short hold-open time).

The + or - key is also used to modify the set value (+ corresponds to faster or longer, - corresponds to slower or shorter).

Level 1 is reached again either by pressing both keys simultaneously or if no further operations are carried out on control panel for 1 minute.

RESET	RESET The installation is restarted and set up (chapter 4.2)	LED 32
Vo	OPENING SPEED (40)*-100% Standard setting 100% The reduction of the opening speed is limited by the requirement that the prescribed opening time must be achieved for 80% of the clearance width.	LED 16
Vc	CLOSING SPEED 25-65% Standard setting 65%	LED 8
S	OPENING WIDTH (winter) Adjustment only possible if this feature has been enabled. Setting according to chapter 5.5 Standard setting 100%	LED 4
to	HOLD-OPEN TIME (standard) 0-10sec. Standard setting 2 seconds The hold-open time (HOT) is selected via the inside and outside opening contracts and the light barriers LS1/LS2, and is independent of the selected program switch position.	LED 2
tn	HOLD-OPEN TIME NIGHT (no escape way) 0-30 sec. Standard setting 7 seconds The HOT is selected via the control element KEY/WAKE-UP and is independent of the selected program switch position.	LED 1

Standard settings are validated upon the first commissioning of the door.

If a RESET is made after adjustments have been changed on the 2nd level, the programmed values are maintained.

If the standard values have to be enabled after a RESET, softswitch 18 must be switched to ON.

Malfunction indication (4th level)

In the event of a fault, the normal program position display is interrupted every 2 seconds for a duration of 1 second to display a red error code (LED ERROR lights up with error no. \Rightarrow LED 1/2/4/8/16). The error number is calculated by adding the numbers next to the red LED's which are lit.

Example:

2 sec \Rightarrow LED 8 is lit = program AUTOMATIC

1 sec \Rightarrow LED's 8/4 (red) are lit along with the LED ERROR $\Rightarrow 8 + 4 = 12 \Rightarrow$ error no. 12

If the most recent error is no longer pending, it can be displayed by pressing both buttons (+ and - at the same time for more than 2 seconds) in the program position AUTOMATIC (LED 8).

The next actuation of the + or - button, or if the BEDIS is not used within 1 minute, causes the control panel to return to the 1st level.

Error List

Error no.	Fault	Alarm
1.	Motor no. 1 circuit shutdown /defective circuit card/defective motor	Yes*
2.	Incorrectly connected plug on connection X4	Yes*
3.	Obstruction during learning path smaller than 9 inches	E*
4.	Overshot during learning path smaller than 386 inches	E*
5.	Excessive friction travel resistance too great	E*
6.	Motor no. 2 circuit shutdown /defective circuit card/defective motor	Yes*
7.	Obstructed during learning path smaller than 9 inches	E*
8.	Overshot during learning path greater than 386 inches	E*
9.	Excessive friction travel resistance too great	E*
10.	Control Box defective	Yes*
11.	Short-circuit on 24v external connection on Control Box	Yes*
12.	Electric Lock fault path smaller than 1 1/2"/lock monitor	Yes*
13.	Lock monitoring fault (door position or lock bolt position)	Yes
14.	Error Holding Beams connection or holding beams	Yes
15.	Power interrupt, battery mode	No
16.	Battery is not operative	Yes
17.	CLOSED position error	No
31.	Closing hindrance special	Yes
	* The 24v power supply is switched off. E This error is only identified during the setting up procedure, it activates the alarm output	

If there are several errors, the error first detected is the one displayed. The ALARM refers to the alarm output and is activated according to the error table (yes).

The LEDs on the electronic PCB's indicate additional status and error displays which complement the information supplies via control panel:

- Supply voltages
 - internal electronics 5 V 1+2 (ON)
 - external voltage 24 V (ON)
 - motor power sup. POWER (ON)
- Photo-electric cells LS1/LS2 (ON)
- Emergency battery charge CHARGED (ON) "blinking" The status displayed between brackets indicates if the control unit is operative.

Safety elements and functions

Light barriers LS1 and LS2

- If the beam of a light barrier is cut, the drive unit is reversed. In the open position the hold-open time (standard) is reset.
- If the door is not closed, the light barrier 1 activates the gong (impulse duration 1 second), provided that softswitch 3 is ON.
- Prior to a closing motion the light barriers are tested.
- If only one light barrier is connected, a bridge must be inserted on the second input.

Reversing mechanism (UA) in closing direction

- Limits the static force to max. 150 N (or to 90 N according to BS guidelines).
- The next movement from the point where the obstruction had been detected is a slow-speed closing motion ($v = 0,19$ m/s).

Stopping mechanism (STOP) in opening direction

- Limits the static force to max. 150 N (or to 90 N according to BS guidelines).
- Door wing between CLOSED position and OPEN position (winter): motor continues to push until there is no pending opening command. Then the door closes after the hold-open time has expired (standard).
- **Door wing between OPEN position (winter) and OPEN position (summer): From the point where the obstruction had been detected, the next movement is a slow-speed opening motion ($v = 0,19$ m/s).**

The main outputs and inputs

Outputs

All the outputs (with the exception of BATT-CHECK and alarm) are **electronic outputs (open collector outputs)** with a maximum load of 24 VDC/300 mA. These outputs are to be used for an external application via a relay (potential-free).

Power supply 24 VDC:

OV terminal = 2/5/6/8/16/20/26/28

24V terminal = 1/7/13/13/19

This power supply is short-circuit-proof and designed for a maximum load of 2 A.

Terminals 29/30/31 Output BATT-CHECK:

This output is used for indicating the emergency battery status. It is a relay output and has a max. load capacity of 24 VDC/1 A.

Terminals 8/23 alarm output:

If an error occurs, the control activated the alarm output. It is a relay output which has a max. load capacity of 24 VDC/1 A.

Inputs

Terminal 22

Program position EXIT with/without control panel (see chapters 5.1 and 5.2.1)

Terminals 8/23

Program position NIGHT (no escape way) with/without control panel (see chapter 5.1 and 5.2.1)

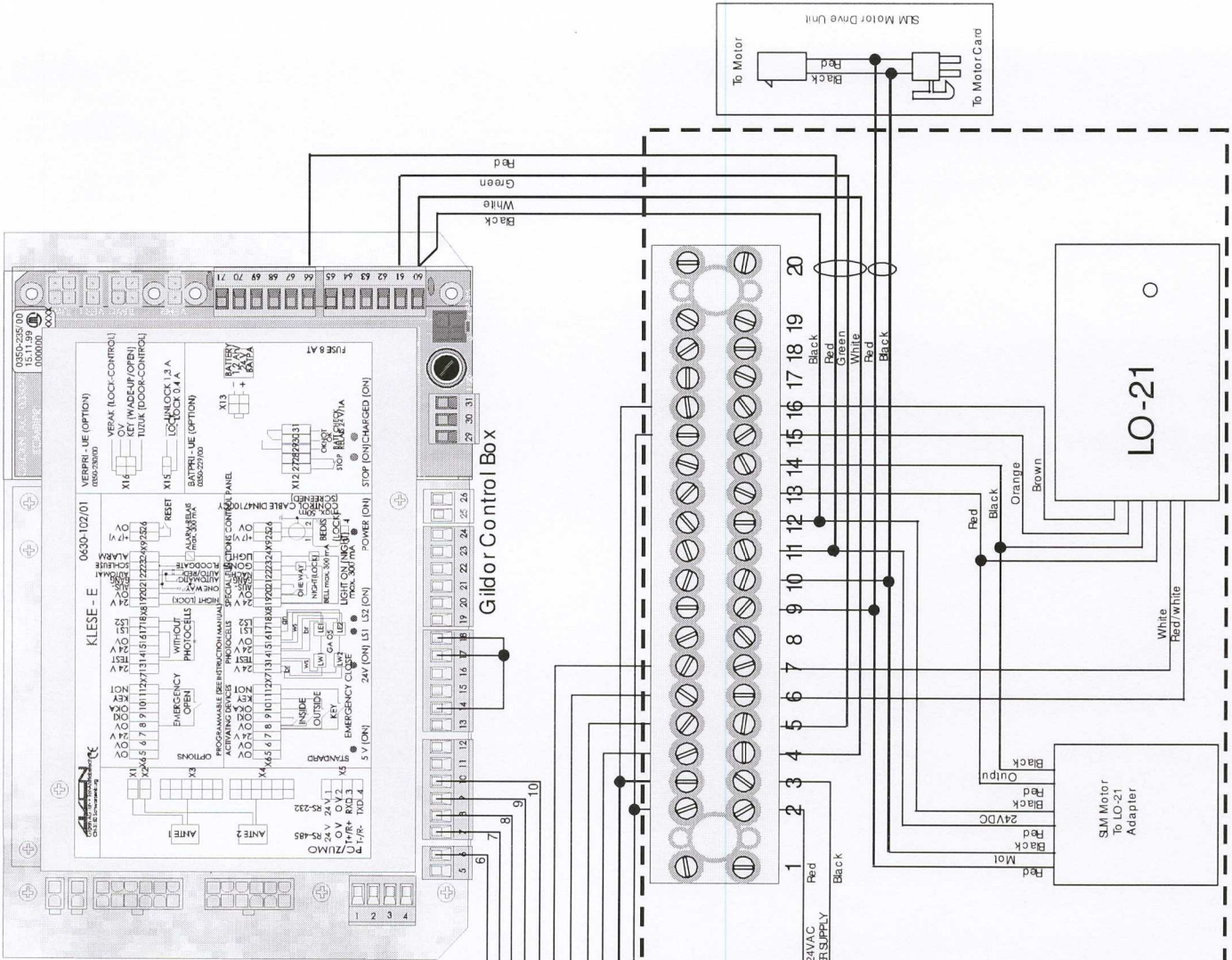
Program position ESCAPE WAY

If no control panel is connected and /or none of the above program positions have been selected (see chapter 5.1)

Terminals 8/11

RESET key (optional or installed by customers)

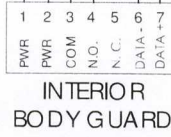
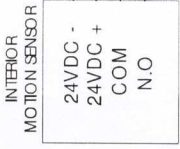
by short-circuiting the control panel connection during 2 seconds (terminals 25/26), a RESET can be carried out with or without control panel.

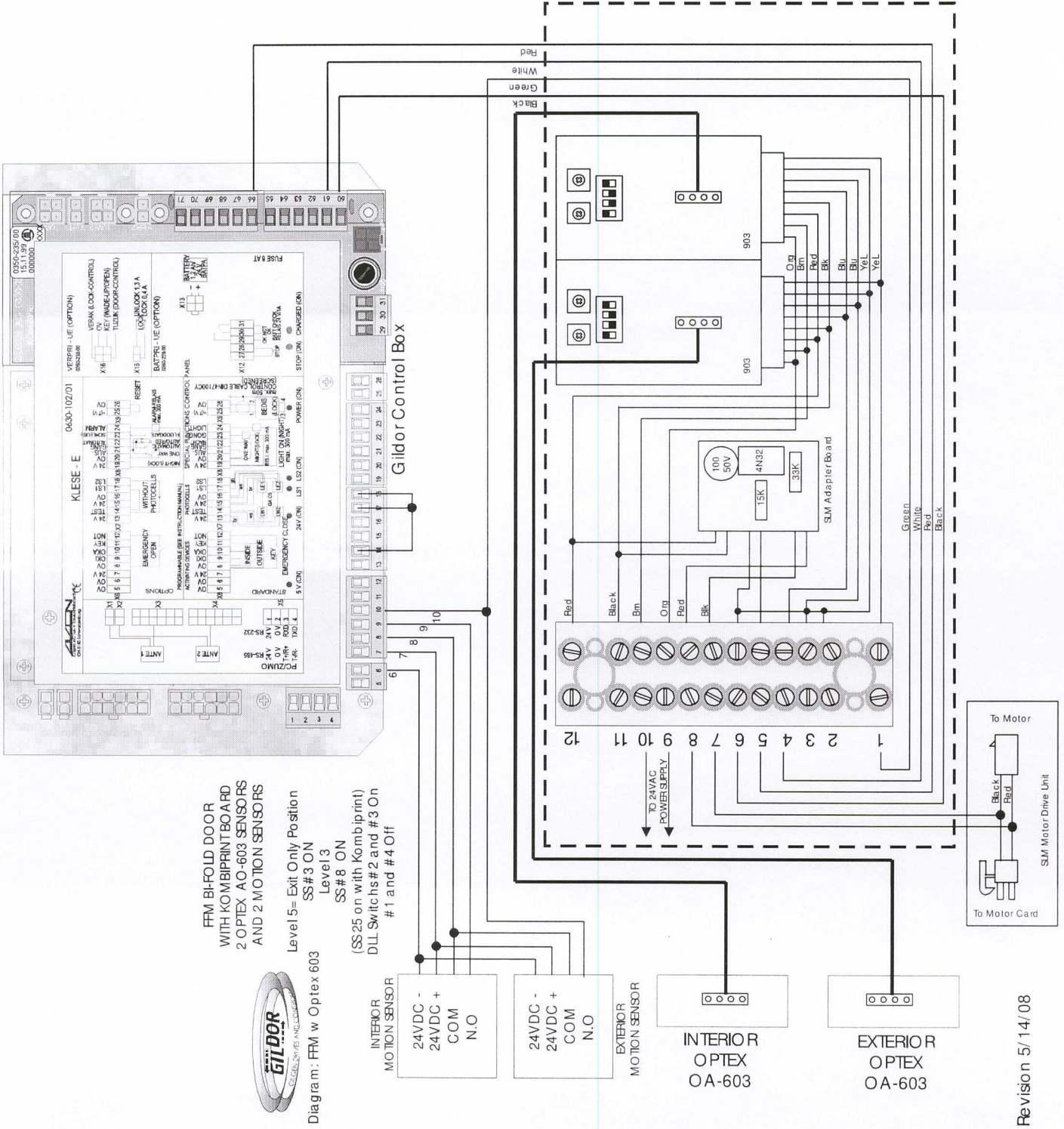


FRM BI-FOLD DOOR WITH KOMBIPRINT BOARD
 2 BEA BODYGUARD SENSORS AND 2 MOTION SENSORS



Level 5= Exit Only Position
 SS#3 ON Level 3
 SS#8 ON
 (SS25 on with Kombiprint)
 DLL Switches #2 and #3 On
 #1 and #4 Off





Opening width (winter)

General remarks

The system offers the possibility to activate the opening width (winter) via the control panel. This activation causes the following characteristics of the door to be changed:

- Activation of the stopping mechanism in the area between the OPEN position (winter) and the OPEN position (summer).
- In order to calculate the width of the escape way (80%), the opening width (winter) is used.
- Now the following additional program positions are available:
 - OPEN (winter)
 - AUTOMATIC (winter)
 - EXIT (winter)
 - NIGHT (winter) (no escape way)

Procedure:

- First select AUTOMATIC (winter) LED 4. After a waiting time of 2 seconds, the required function can be set:
 - OPEN LED 16
 - EXIT LED 2
 - NIGHT (no escape way) LED 1
- The entire opening width is restored by selecting the AUTOMATIC (summer) LED 8 function.



Warning:
The feature Opening width (winter) must only be adjusted if the following conditions are fulfilled:

- The escape way door has not been installed in an escape way.
- The opening width (winter) is still wide enough to answer the required minimum escape way width of the respective country (the regulations valid in the country of application must be complied with).
- The opening width (winter) for a particular application has been approved by the building inspectorate.

After changing the programmed opening width (winter), a RESET must be carried out!

Setting

1. Release of the opening width (winter) by means of softswitch 14.
2. Setting of the opening width (winter) according to the regulations valid in the country of application.

Minimum required escape way width according to the German guidelines for work places ASR 10/4:

Number of persons within the area of the exit	Minimum escape way width (degree of criticality)
...5	34 1/2"
...20	39 3/8"
...100	49 1/4"
...250	68 3/4"
...400	88 1/2"



Warning:

Information regarding the number of persons who, in the event of a emergency, need to use the door to leave the room can be supplied by the responsible building owner or architect. The above-mentioned guidelines for work places ASR 10/4 are only referred to as an example.

Emergency battery

Important Instructions

- Two maintenance-free lead batteries 12 V/1,2 connected in series provide an emergency supply voltage of 24 V.
- The control consumes 4.3 mA of current if:
 - the battery is connected, but the mains supply is not yet available.
 - in the event of a mains failure, in the program position NIGHT (dormant state).
 This means: the battery is exhausted after approx. eight days. For this reason, do not connect the battery before the installation is taken into operation.
- The batteries are supplied in a charge state.
- Unused batteries must be recharged every six months.
- Before replacing an individual battery, make sure that the minimum voltage of the new battery is at least 12,4 VDC (without load). Should this not be the case, then the battery must previously be recharged.
- Batteries of various brand (manufacturers) must not be used together!

Recharging

1. Detach the connectin cables form the batteries.
2. Recharge the batteries individually for approx. 12 hours:

Charging voltage	14,7 VDC
Max. Charging current	0,36 A
3. Reconnect the connecting cables and enter the charging date.

LED Displays (mains operation)

LED-CHARGED	Error display BEDIS	Relais Batt-Check	Emergency battery condition	Emerg. battery voltage during test (load - 1A)
Permanently lit	---	OK	Emergency battery is charged	>25 V
Flashing	---	OK	Emergency battery is being charged	>22 <25 V
Flashing	Error 29	Not OK	Emergency battery is being charged	>19,5 <22 V
Flashing	Error 30	Not OK	Emergency battery-powered operation is not guaranteed. The system attempts to charge the emergency battery. THE EMERGENCY BATTERY MAY BE DESTROYED!	<19,5 V
Extinguished	Error 30	Not OK	Emergency battery has not been identified by the system. Check the bridge connection. RESET	

Due to emergency battery ageing, the emergency battery voltage of 25 V may no longer be exceeded. LED CHARGED keeps flashing. No measures need to be taken.

If error 16 is displayed on the control panel during more than 8 hours, it has to be assumed that at least one cell of the emergency battery is no longer functional or that the connection cable has been cut.

Emergency Battery Test

The emergency battery load test is carried out as follows:

- Every 2 minutes
If the emergency battery was recognized during the setting-up procedure and was then removed (Relay Batt-check Not OK).
- Every 4 minutes
If the emergency battery charge is $<25V$ (Relay Batt-Check OK).
- Every 16 minutes
If the previous test has shown that the emergency battery was charged and the continuous checking of the charge detects the status “fully charged” (Relay Batt-Check OK).

If a emergency battery has been recognized during start-up (RESET or switching-on of the mains power), the charging electronics always remain active!



Warning:
For safety reasons, we advise you to replace the emergency battery every 4 years.

Mains failure

- LED off
Installation carries out an emergency opening by means of the emergency battery and remains in the open position (exception: position NO ESCAPE WAY of the key-operated program switch).



Note:
Whenever the power plugs of the drive units are pulled out, the plug of the emergency battery must also be disconnected in order to avoid a discharge of the latter.

Particular instructions for the customers

Instructions according to the operator's manual for automatic folding wing door FFM.

Light barrier fault (if applicable)

If the installation is open when the premises close, because the light barrier is interrupted, the door will close nonetheless at slow speed when the system is switched to the program position NIGHT (no escape way), in spite of the fault.

This function is also applicable for other malfunctions.

Emergency battery "wake-up"

In the operating mode NIGHT (no escape way), an opening (**wake-up**) can be triggered by means of the control element KEY. For this **the control element must be actuated for approx. 3 seconds**. At the end of the NIGHT (no escape way) hold-open time, the door shuts and the control system is switched off again. Normal operation is only possible after the mains supply is switched back on.

MAINTENANCE AND TROUBLESHOOTING

Security and warranty

Regular maintenance is absolutely required in order to guarantee a long life span and a safe operation of the FFM folding wing door. **Check the installation at least once a year.**

Maintenance must be carried out by specifically trained personnel.

If the maintenance is neglected or carried out by unauthorized personnel, the manufacturers respectively the distributor cannot be held responsible for any damages that might occur and their consequences.

Any subsequent intervention or modification of the FFM folding wing door shall only be carried out by specially trained personnel.



Warning:
Before working on live elements, always pull out the power plugs
and the emergency battery plug!



Attention:
Avoid to use running water for cleaning the drive
case! Do not use any corrosive cleaning products!

Maintenance

Check the function and wear of the different elements (as far as these are included in the installation), according to the operating instructions.

To avoid jeopardizing the safety of the door users, any defective safety elements may not be disconnected in order to continue the operation of the door!

In order to guarantee the availability of the installation, a preventive replacement of any elements showing signs of wear is strongly recommended.

Basis: OS-CL 4.06.09.050.4

	Check	Clean	Grease	Adjust
Installation				
General condition door installation	X			
Free door movement, manually	X			X
Door guides/guideway rail	X	X		X
Sealing joints	X	X		X
Side panels/protection wings	X	X		
Coverings/hinge-type cover	X	X		
Check tight fitting of the screws and nuts	X			
Clean the installation	X	X		
Drive mechanism				
Drive mechanism	X	X		X
Holding power in CLOSED position	X			
Transmission elements such as: toothed belt, flat belt, cables, rods or chains	X	X		X
Carrying-and counter-pressure rollers/ traveling carriages	X	X		X
Carrier rails	X	X	X	
OPEN/CLOSED positions	X			X
Control unit				
Electrical connections	X			
Control functions	X			X
Program switch (check all the positions)	X			
Emergency opening (pull out both power plugs of the ANTE's)	X			
Control elements				
All the existing control elements such as: sensor, radar, key-operated switch, Contact carpet	X	X		X
Safety elements				
Reversing/stopping mechanism	X	X		X
Door locking/manual unlocking mechanism	X	X	X	X
Mechanical emergency opening	X			X
Monitoring switch	X	X		X
Light barrier	X	X		
Existing additional safety elements	X	X		X
Minimum escape way width	X			X
Miscellaneous				
Stickers/rating plates	X	X		

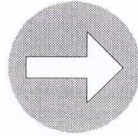
Malfunction	Visual checking	Cause/Reason	Corrective measures
Door Remains closed	Key-operates program switch ONE WAY/ NIGHT Lock	On NO ESCAPE WAY Locked	On ESCAPE WAY Unlock
Door continuously performs short opening and closing	Test run activated on control panel Door movement	Incorrect adjustment of control panel Stopping mechanism has been triggered Wing weight to high Defective control unit	Deactivate the test Check the mechanical part (traveling carriage, guideways, wings, etc.) Replace the control unit
During the closing motion, the door suddenly reopens automatically	Door movement Error detection of the motion detector	Reversing mechanism has been triggered Wing weight to high Defective control unit Environment (wings, persons)	Check the mechanical part (traveling carriage, guideways, wings, etc.) Replace the control unit Check the adjustment of the motion detector

Warning:

Should it not be possible to eliminate immediately any potentially dangerous malfunctions, the user of the installation must be informed of this fact and - if necessary- the installation shall be taken out of operation. The installation shall be repaired as soon as possible.

Every maintenance and troubleshooting action which has been carried out shall be fully noted in the check book or in the master card.

The date when the next checking is due must be specified by means of the monthly sticker on the maintenance sticker.



Note:

After the maintenance work has been completed:
carry out a RESET.