

Lift controls

**AST**

Short description

**REKOB**

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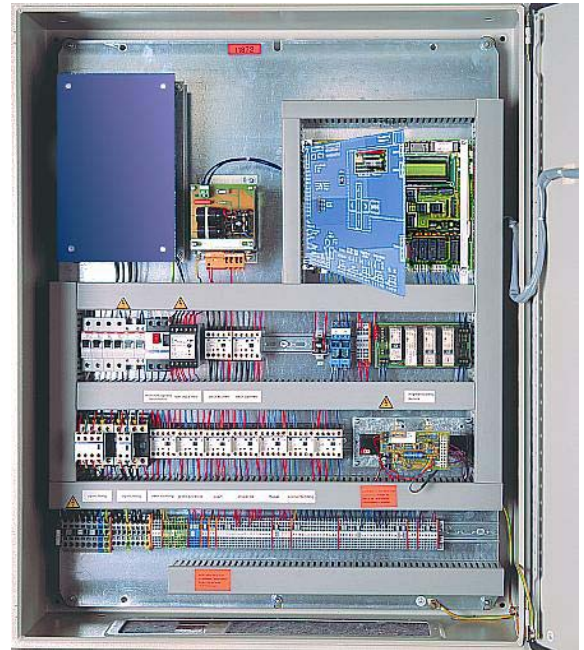
[www.rekoba.de](http://www.rekoba.de)

## 1 General

REKOBAs lift controls *AST* are equal to laws of TRA200, resp. EN81 and meet regulations of EMV-law and law of low-power-circuits. They are available for all types of elevators (single elevators, elevator groups, rope traction elevators with or without drive-regulation, direct or indirect driven hydraulic elevators) and suitable for whole area of elevator control.

The central of each elevator control is the command unit. They control and supervise the elevator in all motions including its doors and arrange from the entered calls a travel program. Into the REKOBAs lift controls, dependent on the requirements to the elevator functions, different command units are inserted:

*Lift installation with EKM*



|  | Command unit    |                         |
|--|-----------------|-------------------------|
|  | <i>KSA4811</i>  | <i>EKM64</i>            |
| Drive:   |                 |                         |
| one speed                                      | x               | x                       |
| two speeds                                     | x               | x                       |
| three speeds, regulation                       | --              | x                       |
| Automatic control, non-collective; busy signal | x               | --                      |
| Universal control: single-button-collective    | x               | x                       |
| Down collective                                | x <sup>1)</sup> | x                       |
| Up/down collective                             | --              | x                       |
| Max. stops                                     | 10              | 64                      |
| Lifts per group                                | --              | 8                       |
| Number of stops in base configuration          | 2               | 8 ... 10 down / up/down |
| Selective door control                         | --              | x                       |
| Compulsory door-close                          | --              | x                       |
| Door closing/opening time (sec.)               | --              | adjustable              |
| Waiting time (sec.)                            | 1 - 8           | adjustable              |
| Parking floor adjustable                       | --              | x                       |
| Parking travel (sec.)                          | --              | adjustable              |
| Parking with opened/closed door                | x               | x (selective per floor) |
| Lowering time (min.)                           | 7 or 14         | adjustable              |
| Preference travel                              | --              | x                       |
| Service travel                                 | x               | x                       |
| Electrical emergency operation                 | x               | x                       |
| Travel for position-correction                 | x               | x                       |
| Firemens ride                                  | --              | x                       |
| Full load travel                               | --              | x                       |
| Stop hall calls/erasure cabin calls            | --              | x                       |
| Short-floor-travel                             | --              | x                       |
| Inching with opened/closed doors               | --              | x                       |
| Position outputs                               | x               | x                       |
| Call accepted in/out                           | x               | x                       |
| Next-travel-direction                          | --              | x                       |
| Fault memory                                   | --              | x                       |
| Connection type for PC                         | --              | x                       |
| Passwort-system                                | --              | x                       |
| 2 lines BUS-system                             | --              | x                       |
| Serial cabin wiring                            | --              | x                       |
| Menue-controlled parametritrion                | --              | x                       |
| Serial regulator control                       | --              | x                       |

1) with additional board „AbSa“

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## 2 Layout of controls and documentation

REKOBAs lift controls are clearly developed in a cabinet of painted steel for mounting onto wall or onto floor with one or double swing door. All components are marked with indices which are to be found in electrical schematics.

The security circuit operates with 230 VAC. Indicator lamps and floor announcement are supplied by unstabilized 24 VDC. The connecting terminals are clearly separated. All internal wirings are done through cable channels and the ends of lines are long enough for other arrangements.

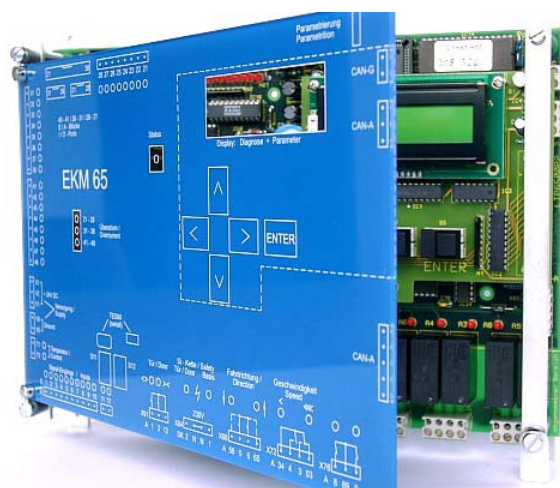
Due to the computer-assisted preparation on CAD-systems for each control cabinet order-related and individual documents are provided. Electrical- and terminal diagrams in fivefold execution, detailed documentation to the command unit and material bills ensure a fast and secure installation.

## 3 Characteristics of the command units

In the controls our proven electronic command units are used, which are provided either with microprocessor or fixed programme carriers and contain all necessary elevator functions. Depending on used command unit and its external wiring the controls can be designed for elevators in buildings with small traffic-technical requirements up to groups of elevators with an optimized load-facility by perception of travel by dynamic travel-control. Thus the cost effectiveness is optimized in relation to operation of the lift installation.

### 3.1 Command unit EKM64

The process-controlled command units *EKM64* (*EKM65* in preparation) as pilot control are suitable for the employment in all lifts, they fulfill all requirements of TRA200 and EN81.



*Command unit EKM64/65*

Up to eight command units of EKM64 can be connected to a group of elevators.

In the program various elevator parameters for different control types are stored and by means of display and keyboard, laptop or PC easily callable. This display is attached on the pluggable service-module *EKM6402*, which serves further for locally diagnosis. The service-module can serve as equipment of lift technician or also remain durably on the command unit.

For the fault recognition and easement of the cause research an extensive diagnosis is possible. Arisen disturbances will indicate with date and time in the memory for approx.. 250 notes.

The memory can be locally read at the display, an attached PC/Laptop or from the distance.

For remote diagnosis the transmission takes place within the telephone network via an inserted modem, e.g. that of TransAlarm station, which serves at the same time for the emergency call remote transmission.

The *EKM64* consists of few self-sufficient modules, which divide the entire control into subprocesses and which decentralized in the unit, at the place of the need accomplish signal processing. Intelligent I-/O-modules are wired via 2-lines CAN bus system with serial interfaces to the cabin, to the elevatorgroups, to the shaft, to the motor regulator and to the central control in the machine room. Thus the wiring expenditure with typical sources of faults is reduced.

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Likewise the layout of controls is simplified and the insurance of operation, the service and the fault diagnosis is optimized.

The shift installation can be still further reduced with use of digital shift copying DSE and limited to the security switches.

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Apart from the normal elevator functions like up/down collective, selective door control, firemens ride, full load travel, preference calls etc. controls with EKM64 are specially designed to optimize the load-facility by perception of travel for elevators groups with dynamic traffic-control.

Their most important functions are:

**Heavy-duty floor** (or: Hall-peak)

Characteristic for the recognition of the tendency is the immediate repetition of hall call after leaving the cabin in the floor concerned.

Example: Hotel while arrival of tourist-group. All lifts will return to main floor after unloading at once and continue normal mode after end of this peak.

**Entrance-control** (hall-call erasure)

Input signals, depending on floor, for an external entrance-control will cause erasure of hall-calls if misuse is recognised.

**Tendency travel** (car-peak)

Characteristic for the recognition of the tendency is the one-sided traffic to a special floor.

Example: Call in office building to restaurant floor while lunch time. For recognition of tendency all lifts will collect to restaurant-floor.

**Parking floors** (flexible parking-zone for groups)

Each elevator is booked with a parking zone for low traffics. That means to avoid uneffective no-load traffics.

Example: A lift stops within an area which is not booked to it. Lift will remain in this zone and won't return to stop which was booked it.

Apart from the optimization of the handling capacity these functions also contribute to energy and waiting period saving traffic.

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In combination with the systems *TransAlarm*, *AWM* and *TESIM*, which are to be described in the following, here a complete system for control and supervision of elevators is available.

The system *TransAlarm* serves the remote supervision of emergency calls from lift-cabins according TRA 106. Further it offers signal inputs, which can be used for the remote supervision of elevator functions by means of the lift-supervision module *AWM* (EN 627).

*AWM* announces one at the lift recognized fault via telephone line to a superordinate control system. This ensures a large transparency of the lift-control and aims at need-oriented service.

The computer program *TESIM* can be used locally or for remote diagnosis via telephone line. Likewise the unit can be operated from the distance e.g. for call input.

*TESIM* offers the graphic monitoring of the elevator, the fine diagnosis and the long-term diagnosis for travel with a logical analyzer by means of a fault memory

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The lift control **AST** with

- the command unit **EKM**,
- in combination with emergency-call remote system **TransAlarm**,
- the lift-supervision module **AWM**,
- the diagnosis system **TESIM**,
- and the shaft-copying **DSE**

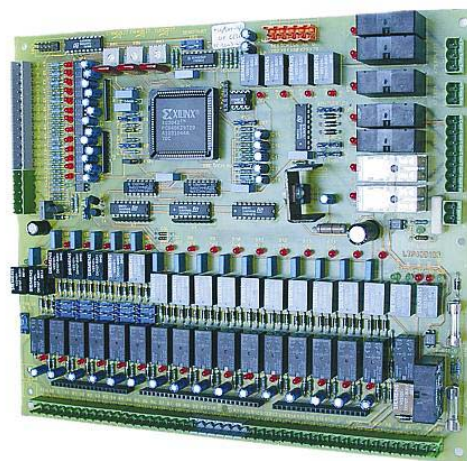
are an innovative elevator control and monitoring system with universal ranges of application meeting demand.

It is supplemented by security-circuit **S/S** for monitoring of the door zone and in combination with **DSE** it makes the wiring of motor-regulator with several speed defaults or short stops for elevators with high driving speed possible.

*Closer descriptions to these systems are available as separate documents.*

### 3.2 Command unit **KSA4811**

The command unit **KSA4811**, in economical compact construction, is conceived as fixed programmed pilot control. It offers special characteristics for hydraulic systems and is suitable also for rope traction elevators with up to 10 stops without special requirements. Group-future, diagnosis and fault memory are not included. **KSA** is suitable for smaller houses with low traffic. It works alternatively as automatic control, single button collective or also down collective.



**KSA-board**

Basic functions:

- Max. 10 stops
- Non-collective
- 16 control-inputs via optocoupler
- 12 control-outputs via relays
- Possibility for adjustment of door closing / opening time, resting-time and trip-time monitoring
- Time-relay for lowering travel of hydraulic elevator
- Voltage 24 VDC
- State signalisation of in- and outputs by LED's
- relay-contact for direction-indication, displaying next-travel-direction and busy signal
- Pump-motor delay for hydraulic installation
- Firemens ride
- trip-time monitoring

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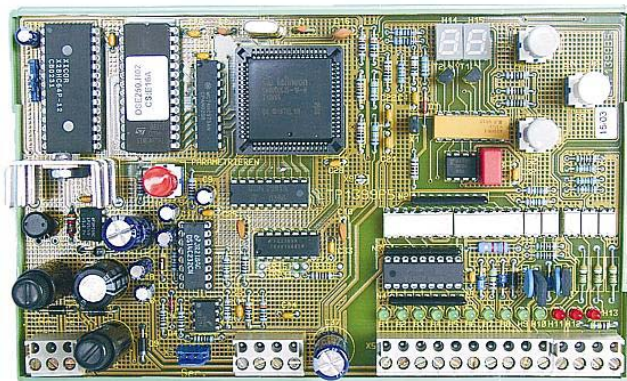


## 4 Shaft-copying

For the determination of the lift cabin in the shaft we offer two systems: The digital shaft-copying *DSE* and and traditional copying *KPW* with magnetic switches.

Magnetic switches and magnets are supplied without mounting material, because an adjustment to the structure of the lift installation is necessary.

The *DSE* system consists of control electronics (in the cabinet) and an incremental pulse-generator. For this we supply a mechanism set with various mechanical attachments and a tooth-belt. The tooth-belt moves the pulse-generator by means of diverting-pulleys, which are fixed at the lift cabin.



According to elevator-speed different combinations for pulse-generator and diverting-pulleys are possible.

The mechanism set is available in two variants:

- Variant 12 with 80 mm-pulley; incremental pulse-generator with 125 pulses / turn;  
 $V_{\max} = 1,9\text{m/s}$
- Variant 10 with 150 mm-pulley; incremental pulse-generator with 250 pulses / turn;  
 $V_{\max} = 1,8\text{m/s}$ .

Further variants we deliver according to demand.

*DSE control board*

## 5 Accessories

### 5.1 Inspection box

As planned we supply an appropriate cabin-roof inspection box to each control cabinet. This contains all connecting terminals, switches and buttons for the service control, an emergency stop actuator as well as a power outlet, when desired also a switch for the shaft lighting.

### 5.2 Shaft lighting

For shaft lighting we offer a system for the simple, fast and thus cost-saving installation by means of connectors. The system consists of fluorescent lamps (120 cm, 36 W) with plug connection, appropriate number of pluggable connecting lines, a lead wire of 10 m length and an end-line with wall-plug. For small shaft sections protection tubes for the lamps are available.

For the operation of the shaft lighting with buttons the elevator control cabinet can be equipped with a relay. According TRA200 the connecting lines can be installed freely in the shaft; when assembling according EN81 their attachment is necessary by means of cable-clips or cable-channels.

### 5.3 Other accessories

When desired, we supply trailing cables for the controls (round or flat) including attachment and the shift installation, also with cable-channels.

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5.4 Intercom units

REKOBA offers an extensive delivery program of emergency call units for elevators:

System BFA

This contains beside inexpensive units for single elevators and compact devices for up to six cabins also extensive emergency call and monitoring panels for in-house control centres. They make possible individual design and are also suitable for installation of indicating and control elements, which do not belong to the intercom unit.

Beside the units for lift cabin, machine room and porter further apparatuses are available e.g. for cabin roof, shaft or fire-brigade. By means of additional components a coupling is possible for emergency call remote transmission via telephone network.

System TransAlarm

*TransAlarm* was already described in connection with the command unit *EKM* in section 3.1. In basic function it serves for remote supervision of emergency calls of lift cabins via telephone line and can also be used for transmission by data informations from the lift installation.

*Closer descriptions to these systems are available as separate documents.*



Porter units of system BFA



TransAlarm-station

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