4. Hardware of the KUAX 671

4.1. General

The control electronics of the cam control unit KUAX 671 is mounted in a robust, finished metal housing suitable for industrial applications. The housing can be installed either with a mounting angle or, if desired, using couplers for mounting rails complying with DIN 46277.

4.2 Mechanical design

The electronics comprise two modules:

1. The CPU module with
   - integrated power pack
   - programming interface

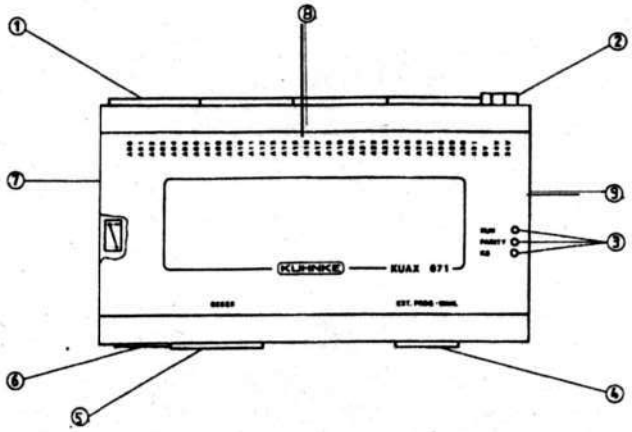
2. Input/output module with
   - connector plug (D-Sub) for the encoder
   - terminal strip for connecting the external program selection device
   - connection terminals for the outputs
   - integrated output LEDs (optional)

A terminal block is used as the attachment point to supply power both to the internal power pack for the cam controller (24 V DC, I ≤ 0.5 A) and to the outputs. This terminal block is located to the right of the output terminal strip. Since the amount of power drawn by the outputs depends on the load, the power pack must be selected so as to be able to deliver the required amount of current.

Three LEDs are provided on the front panel to indicate normal operation and to signal malfunctions:

Display:	RUN	→	Controller is running
	PARITY	→	There is an error in the program
		→	Encoder has reached maximum speed (with dynamic version only)
	SHORT (KS)	→	Short circuit indicator
		→	Flat battery (depending on type)
	Report outputs	→	Short circuits and parity, battery check. (Order No.: 671.022.16 or 32)

4.3. Illustration of the control unit



1 Output terminals 0 to 15 or 0 to 31.

2 24 V DC input for the built-in power supply to the cam controller and to the outputs.

3 Operation and malfunction indicators.

4 Terminal block for the external program selection.

5 25pole D plug for the absolute angle encoder.

6 Plug connector for the hand terminal.

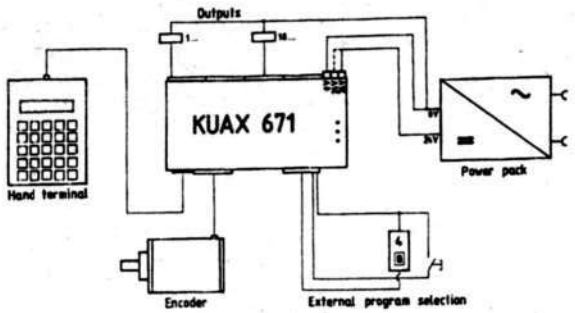
7 Hook switch to reverse the direction of encoder rotation (accessible only after unscrewing the side panel).

8 Output LEDs.

9 Battery compartment for Lithium battery.

4.4. Installation plan

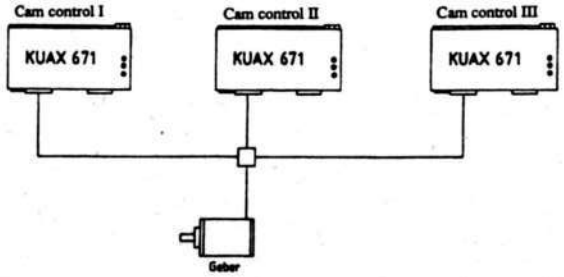
KUAX 671 with hand terminal and external program selection



The supply voltage (24 V DC) must be applied to both connector terminals if more than 16 outputs are utilized.

4.5. Expansion steps

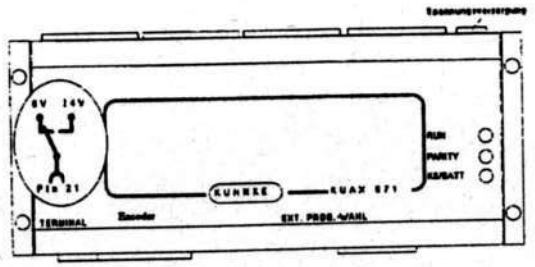
A maximum of three controls can be connected via an adapter. Thus, the number of outputs can be expanded by 16 or 32 to a maximum number of 96 outputs.



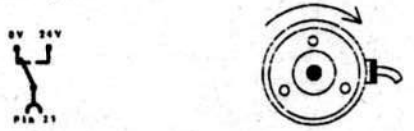
4.6. Counting direction of the rotation encoder

The counting of the rotation encoder can be reversed by a hook switch inside the control (see diagram).

You can decide between: clockwise rotation ---> counting upwards
anti-clockwise rotation ---> counting upwards



Switch positions: Rotation directions



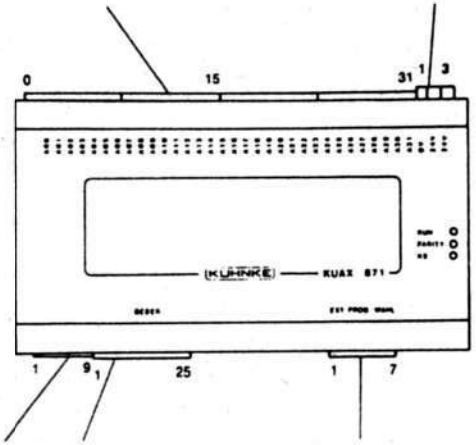
Encoder counts upwards during clockwise rotation

Encoder counts upwards during anti-clockwise rotation

4.7. Plug connectors and pin wiring plans

Output terminals
0 to 15 or 0 to 31 in
block of 8

Connector for the power supply
3pol. terminal strip PIN 1GND
PIN 2 24 V DC
PIN 3 24 V DC



Terminal connector
9pole D plug

Encoder connector
25pole D plug

Connection for
external program selection
7pole terminal strip

Pin wiring only
on request 1

see ch. 4.9.

PIN		PIN
Track 1		1 2^0
2	Track 2	2 2^1
3	Track 3	3 2^2
4	Track 4	4 Special function
5	Track 5	
6	Track 6	5 Special function
7	Track 7	6 Start program
8	Track 8	7 24 V DC
9	Track 9	
10	Track 10 (only for 1000-division encoder button	We recommend using BCD coding switches with a separate start
21	Reversing rotation direction	
23	Shield	
24	24 V DC	
25	GND	

4.8. Posi Control with report outputs

Order No. 671.022.16 or 32

This model has the following special functions:

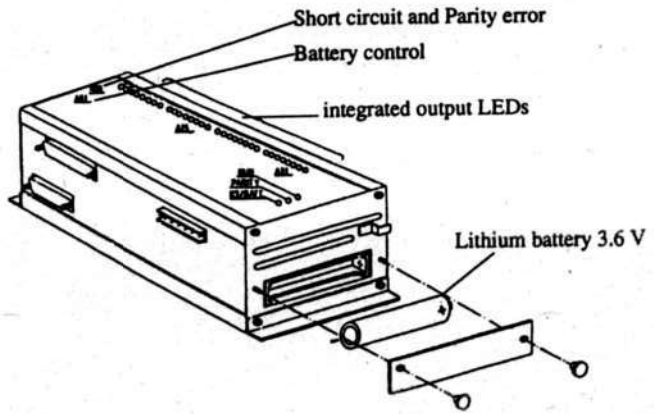
1. Individual switch-off of outputs in case of a short circuit. Only the output with a short circuit is switched off.
2. Interpretation of parity errors. If there is a parity error in the current program, this error will be reported without interrupting the processing of the program.
3. Reporting of error messages. Additionally to the LEDs indicating malfunctions, possible error messages are reported via outputs A00 and A01.

Output A00 a) Short circuit is at one of the outputs
b) Parity error in the current program

In the case of an error, the output is switched off and the LED goes out. Depending on the type of error, the appropriate malfunction LED lights up additionally.

Output A01 Control of battery voltage

The output is switched off. The output LED goes out in the case of the battery voltage sinking below 3.4 V. Additionally, the KS/BATT malfunction LED lights up.
If this error message occurs, the Lithium battery has to be replaced within 4 weeks.



Note: Change battery only while the unit is switched on. After removing the cause of the error the cam controller can be reactivated via the PG 671 hand terminal pressing CTRL 2.