



KiUcm

Unintended car movement detection device

Detection of unintended car movement according to EN
81-20:2014

Manual

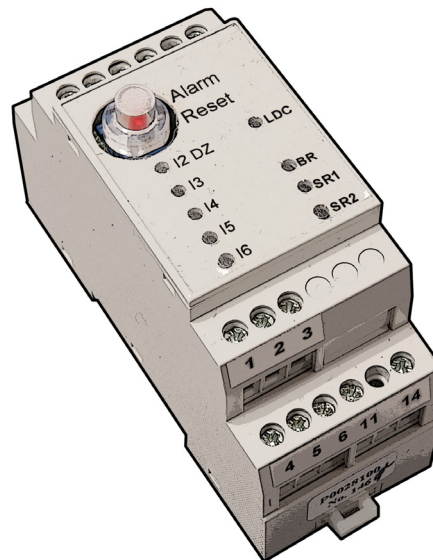


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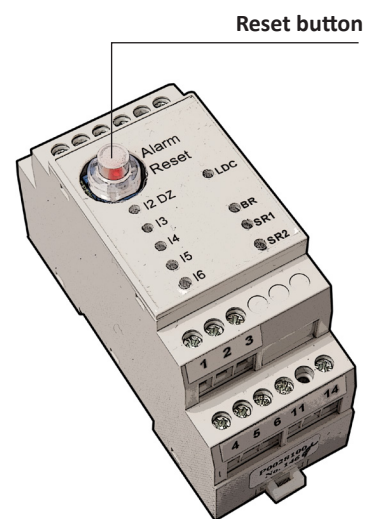
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Introduction:

Please read these instructions carefully before installing the unit.

- The unit **KiUcm** is certified as a safety circuit containing electronic components and programmable electronic system according to the lift directive 2014/33/EU.
- It is also certified as a detecting device of unintended car movement with open door according to EN 81-20:2014.
- **KiUcm** has a micro processor with "watchdog" function to constantly monitor all inputs and outputs.
- It has dual monitored relays with forcibly guided contacts that connects to the elevators safety circuit.
- Button to reset the alarm UCM also fits in the same unit, the button is equipped with LED indicator to easily see active alarms.



Technical Data:

Main data:

Supply voltage: 24VDC
Power consumption: 70 mA
Voltage across the safety relays: max 250 VAC
Maximum current over safety relays: 2A
Reaction time: 12,5 ms
Ambient temperature: -15°C - +50°C
Pollution degree: 3 (IEC 60664-1)
To be mounted in a dry environment in an enclosure rated at least IP2x

Connections Hydraulic lifts:

1: 24 VDC OUT
2: Input, door zone sensor 12-24VDC
3: N/A
4: Monitoring, valve closed (option)
5: Monitoring, valve open (option)
6: N/A
11: Safety circuit IN
14: Safety circuit OUT
21 & 22: Relay output extra valve (A3 valve)
CAN1: CAN bus
CAN2: CAN bus
PE3: Shield connection CAN bus
24: Supply 24V+
0: Supply 0V
GND: Ground
Mp: 230VAC 0
LDC: Input: in parallel with Vision LDC

Physical dimensions:

Length: 90 mm
Width: 36 mm
Height: 63 mm
Weight: 140 g

Connections Electrical lifts:

1: 24 VDC OUT
2: Input, door zone sensor 12-24VDC
3: Input, break contactor activated
4: Monitoring brake 1
5: Monitoring brake 2
6: Monitoring brake 3
11: Safety circuit IN
14: Safety circuit OUT
21 & 22: Relay output safety brake OK
CAN1: CAN bus
CAN2: CAN bus
PE3: Shield connection CAN bus
24: Supply 24V+
0: Supply 0V
GND: Ground
Mp: 230VAC 0
LDC: Input: in parallel with Vision LDC

Functions:

Detecting of unintended car movement:

KiUcm compares the unlocking zone from unlocking zone sensor and unlocking zone from the encoder via CAN bus from the Vision control system. The safety relays will open when any of these inputs are low and input from door circuit (LDC) are missing.

Monitoring of stopping element electrical lift:

KiUcm can monitor the stopping element.

Monitoring of stopping element hydraulic lift:

Valves with monitoring contacts can be monitored in the same way as for electrical lifts. **KiUcm** performs a system leakage test once per day on valves that lack monitoring contacts. Timing of the test is controlled by the system.

Installation instructions:

The electronics are built into a box intended for mounting on a DIN rail. It shall be installed in an enclosure with the lowest IP rating of IP2X.

Connect all wires according to the drawing below.

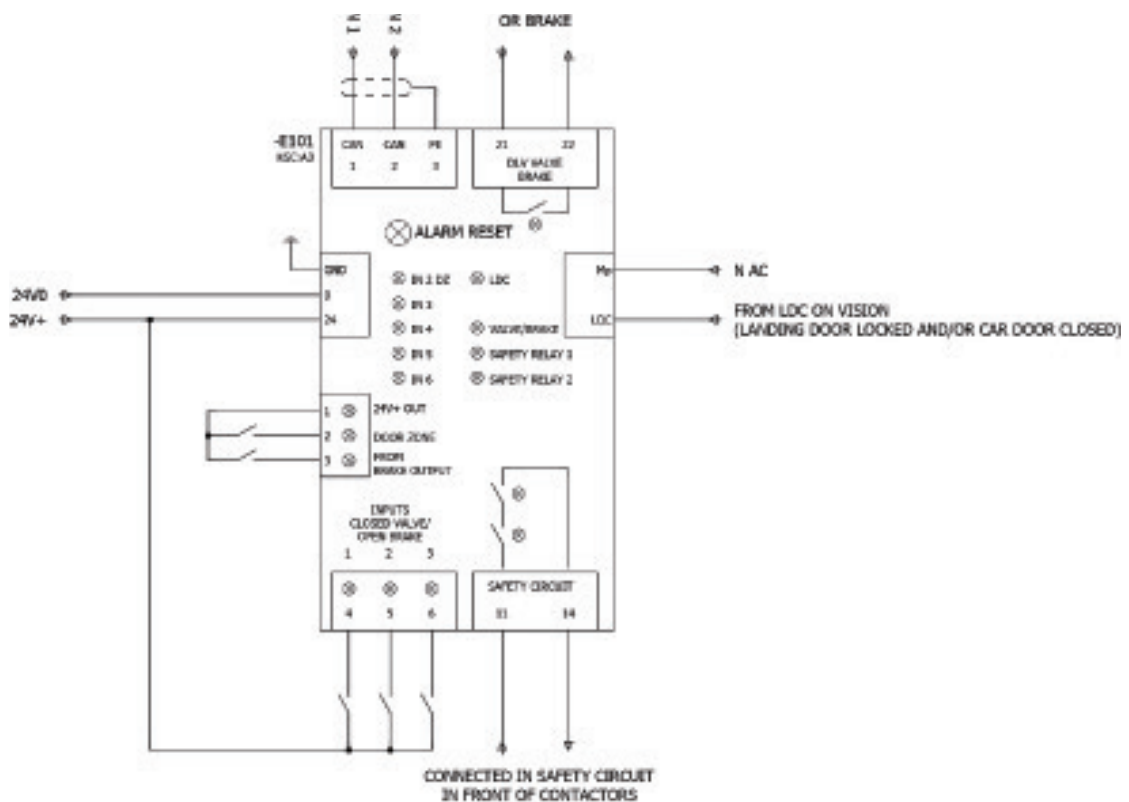
Important to remember is that the terminal 2 is connected to the unlocking zone sensor in parallel with the door zone input X03.1 on the Vision control system and that the CAN bus cable is connected with the same color on terminal 1 on **KiUcm** as on terminal X14.1 on the Vision control system.

The CAN bus cable delivers the secondary unlocing zone information from the encoder via the Vision control system. LDC shall be connected in the safety circuit in parallel with the LDC input X00.5 on the Vision control system in order to determine whether landing door is locked position and/or the car door is closed.

All contacts are drawn in inactivated unaffected mode. Monitoring of extra valve (hydraulic lifts) or brakes directly on the traction sheave axle (electrical lifts) can be done via terminals 4-6.

The validity of the certificate requires that this equipment is installed in accordance with this manual and that other equipment on the lift are designed and installed in accordance with the requirements of EN 81-20:2014.

Note that the **KiUcm** are certified as a detecting device for unintended car movement with open doors. In addition to this equipment a stopping element according to EN 81-20:2014 paragraph 5.6.7. (Note that the complete system have to be tested according to EN 81-50:2014 paragraph 5.8).



Testing instructions:

1.

Leakage test of main valve and extra valve (UCM valve):

KiUcm performs a self test of the above once a day. To verify that the self test is working, press the reset button until the LED lights continuously (10 sec). The test will then start when the button is released.

2.

Detection test with open door:

- Place the lift at any floor. Switch off circuit breaker F5 or tape the photocell when the doors are open to force them to stay in open position.

- Press the stop button in the control cabinet.

- Ensure that no unauthorized persons are in the vicinity of the lift on the floor where doors are open.

- Manually move or force drive the lift (electrical lifts) / emergency lower the lift (hydraulic lifts) out of unlocking zone until **KiUcm** triggers an alarm, alarm XX:0008 will be displayed in the Vision control system. Stop lowering directly when the alarm is triggered.



CRUSH RISK

- Make sure that the reading of distance from floor level in the Vision control system does not exceed half the length of the skate arm / locking ridge on the car door when the **KiUcm** is triggering the above mentioned alarms. This reading will be found in the upper right corner of the display on the Vision control system while in status window.

- Alarm XX:0008 is triggered by the unlocking zone magnet (same one as for door zone). It is not allowed to position this magnet further from the landing floor level than half the length of the skate arm of the car door.

3.

Testing of stopping element (electrical lifts with geared machine):

- Place the lift at floor no. 1.

- Turn on the force drive function (see force drive instructions in the KiLine Vision manual).

- Read the position of the lift in the upper right corner on the display on the Vision control system, should be approx. 1000 mm.

- Force drive the lift upwards. Have someone to lift and hold the standard brake open as soon as the lift starts and hold it open for the rest of procedure (to isolate the stopping element, UCM brake). Press the emergency stop button in the control cabinet when the reading on the Vision control system is 2000 mm (make this as exact as possible).

- Release the standard brake as soon as the lift has stopped. Now read the new distance on the display and subtract 2000 from the new reading, this equals the stopping distance of the stopping element. Add 50 mm to this distance for the distance of the detection in the detection device (**KiUcm**). Maximum allowed total distance according to EN 81-20:2014 is 1200 mm.

4.

Testing of stopping element (electrical lifts with gearless machine):

Make the same procedure as for geared machines except for holding the standard brake. The brake should not be held since the standard brake and the stopping element is the same on gearless machines.

Functions description:

Detection of unintended car movement:

KiUcm compares the unlocking zone from unlocking zone sensor and unlocking zone from the encoder via CAN bus from Vision. The safety relays will open when any of these inputs are low and input from door circuit (LDC) are missing.

Monitoring of stopping element electrical lift:

KiUcm can monitor the stopping element.

The function of brakes on electrical lifts can be monitored. The unit will start monitor inputs no. 4, 5 and 6 as soon as input no. 3 are activated by the brake contactor. Inputs no. 4, 5 and 6 has to be deactivated within 2 seconds otherwise the safety relays will open. The same monitoring procedure is activated on stop by that input no. 3 is deactivated. The unit will activate the relay output 21-22 when input no. 3 is activated and inputs no. 4, 5 and 6 are deactivated. This output can be used as a "run OK" signal to the frequency inverter.

Monitoring of stopping element hydraulic lift:

Valves with monitoring contacts can be monitored in the same way as for electrical lifts.

KiUcm performs a system leakage test once per day on valves that lack monitoring contacts. Timing of the test is controlled by the system.

Leakage test is performed by that the **KiUcm** orders the Vision control system to activate the main down valve while monitoring the lift for any movement. Afterwards the **KiUcm** activates the extra valve while monitoring the lift for any movement. If any movement is detected the safety relays will open.

Timing for the self test is determined by the last power interruption of the lift. If the timing has to be changed, a power interruption has to be made. The first self test is performed approx 2 minutes after the power returns and then every 24 hours.

Alarm indication:

System indication on LED in reset button and in Vision control system:

In the event of an alarm the LED flashes. The number of flashes indicates the type of error. The blinking is repeated with a longer break until the alarm is reset. When multiple simultaneous alarms are present, the alarm with the highest number has priority. The Vision control system shows the sum of the alarms. (eg. XX:0001+XX:0002 = XX:0003)

No of blinks	Code in vision	Description	Cause	Solution
1	XX:0001	Brake 1 or UCM valve.	The contact on brake 1 does not switch or the UCM valve is leaking.	Check brake 1 / UCM valve and then reset the alarm with the reset button.
2	XX:0002	Brake 2 or main valve	The contact on brake 2 (if applicable) does not switch, a jumper from terminal 4 is missing or the main valve is leaking.	Check brake 2 / main valve and then reset the alarm with the reset button. NOTE! A jumper is needed between input 4, 5 & 6 if 2:nd & 3:rd brake is not applicable. (electrical lifts only)
3	XX:0004	Brake 3	The contact on brake 3 (if applicable) is not switching or a jumper between input 5 & 6 is missing.	Check brake 3 / jumper and then reset the alarm with the reset button. NOTE! A jumper is needed between input 5 & 6 if a 3:rd brake is not applicable. (electrical lifts only)
4	XX:0008	Zone error, out of unlocking zone, primary - information from unlocking zone magnet.	The landing door is not in locked position and/or the car door is not in closed position and the lift has left the unlocking zone.	Check traction, braking force,, leakage in valves.
5	XX:0010	Faulty reset button	Reset button is pressed or is hung.	Check the reset button.
6	XX:0020	Zone error, out of unlocking zone, secondary - information from encoder via the Vision control syst.	The landing door is not in locked position and/or the car door is not in closed position and the lift has left the unlocking zone.	Check traction, braking force, leakage in valves.
8	XX:0080	Unit not registered	Serial number on unit not registered on the KiGate web site.	Contact Kinds Elteknik AB for help with registration. NOTE! Internet connection on Vision is needed.
9	XX:0100	Checksum error	-	Contact Kinds Elteknik AB.
10	XX:0200	Watchdog error	-	Contact Kinds Elteknik AB.

To be continued >>>>

Alarm indication:

System indication on LED in reset button and in Vision control system:

In the event of an alarm the LED flashes. The number of flashes indicates the type of error. The blinking is repeated with a longer break until the alarm is reset. When multiple simultaneous alarms are present, the alarm with the highest number has priority. The Vision control system shows the sum of the alarms. (eg. XX:0001+XX:0002 = XX:0003)

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No of blinks	Code in vision	Description	Cause	Solution
11	XX:0400	Zone error - comparison between unlocking zone magnet and information from encoder via the Vision control system	The door zone in the Vision control system is set higher than half the distance between the unlocking zone magnets.	Adjust either unlocking zone magnets or parameter 231.00 "door zone" in the Vision control system. NOTE! The parameter has to be set to a smaller value than half the distance between the unlocking zone magnets.
12	XX:0800	Faulty safety relay, relay 1	Safety relay 1 welded.	Contact Kinds Elteknik AB.
13	XX:1000	Faulty safety relay, relay 2	Safety relay 2 welded.	Contact Kinds Elteknik AB.
14		CAN-bus error	CAN-bus cable not connected or interruption.	Check CAN-bus cable. NOTE! No alarm is shown in Vision control system
15	XX:4000	230V input error	LDC on the Vision control system and the KiUcm are not active simultaneously	Check the connections to the inputs, LDC on KiUcm and X00:5 on the Vision control system.
16	XX:8000	Unit not initialized	Initialization of the unit has not gone through.	Contact Kinds Elteknik AB.