Kinds Elteknik
Takes You To a Higher Level

KiDcs

Door Control System

Levelling and relevelling, monitoring of door contacts, monitoring of emergency electrical operation, monitoring of bypass all according to EN 81-20:2014. The system also controlsthe extra final limit switches according to EN81-21

Manual

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Introduction:

Please read this instruction carefully before installing and commisioning the system!

- The system **KiDcs** is certified as a safety circuit containing electronic components and programmable electronic system according to the Lift Directive 2014/33/EU.
- **KiDcs** is developed to ease the installation work for the lift installers and minimize the number of wires needed.
- The **KiDcs** system consits of two units, **KiDcu1** and **KiDcu2.** The two units have identical hardware but different software. They have a microprocessor with ”watchdog” function which constantly monitores all inputs and outputs.
- The units have doubble monitored and forcibly guided contacts which are connected to the safety circuit of the lift.
- Reset button for alarms are built in to the uinits, the button have a built in LED for indication of alarms.

Technical Data:

Main data:

Supply voltage: 24VDC

Power consumption: 70 mA

Voltage over safety relay: max 250 VAC

Max current over safety relay: 2A

Reaction time: 12,5 ms

Ambient temperaturer: -15°C - +50°C

Pollution degree: 3 (IEC 60664-1)

To be installed in dry environment in an enclosure rated at least IP2x

Physical dimensions:

Length: 90 mm

Width: 36 mm

Height: 63 mm

Weight: 140 g

Connections KiDcu1:

1:	24 VDC OUT
2:	Input for door zone sensor 12-24VDC
3:	Monitoring contact closed car door
4:	Input for emergency electrical operation OFF/ON
5:	Input for emergency electrical operation UP
6:	Input for emergency electrical operation DOWN
11:	Safety circuit IN
14:	Safety circuit OUT
21 & 22:	Relay output, not in use
CAN1:	CAN bus
CAN2:	CAN bus
PE3:	Shield CAN bus
24:	Supply 24V+
0:	Supply 0V
GND:	Ground
Mp:	230VAC 0
LDLC:	Input from landing door lock

Connections KiDcu2:

1:	24 VDC OUT
2:	Monitoring contact closed car door A
3:	Monitoring contact closed car door B
4:	Input from bypass OFF/ON
5:	Input from extra final limit UP
6:	Input from extra final limit DOWN
11:	Safety circuit IN
14:	Safetycircuit OUT
21 & 22:	Relay output emergency electrical operation
CAN1:	CAN bus
CAN2:	CAN bus
PE3:	Shield CAN bus
24:	Supply 24V+
0:	Supply 0V
GND:	Ground
Mp:	230VAC 0
CBS:	Input: 230VAC, not in use

Funktioner:

- **Control of levelling and relevelling with open doors:**
- **Monitoring of door contacts:**
- **Control of emergency electrical operation and rendering it inoperative while in inspection mode.:**
- **Monitoring of bypass function:**
- **Control of extra final limit switches according to EN81-21:**

Installation instructions:

The electronics is built in a plastic enclosure which is to be installed on a DIN rail. The unit has to be installed in an enclosure with at least protection degree if IP2X.

Connect all wires according to the wiring diagram in the next page.

The validity of the certificate requires that the **KiDcs** units is installed according to these instructions and that all other equipment on the lift fulfils the requirements in EN 81-20:2014 and EN 81-21 when applicable.

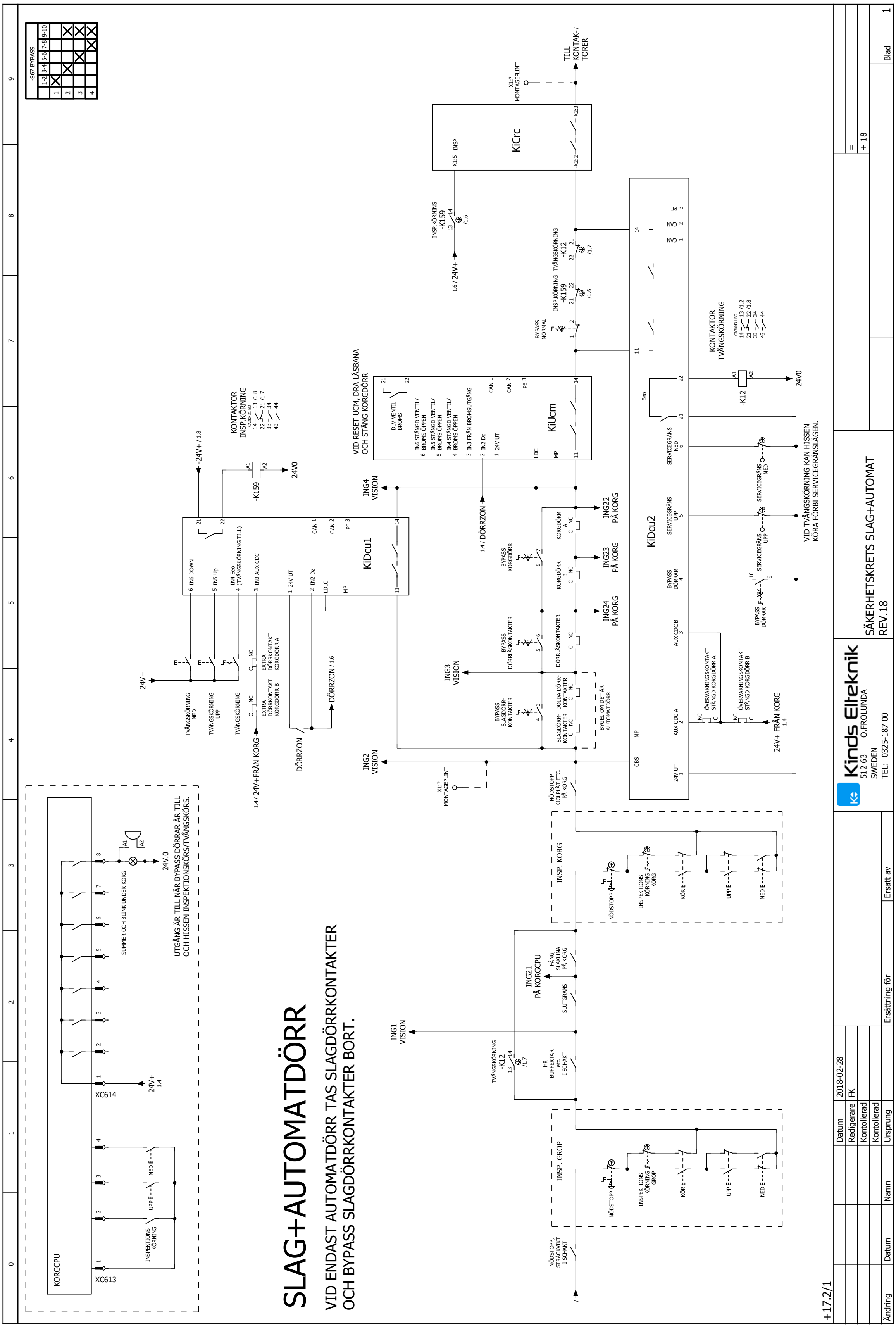
Prerequisites for an approved installation:

Requirements on components connected to KiDcs:

- The bypass device shall have forcibly guided contacts according to Enligt EN 60947-5-1:2004.

- The emergency electrical operation swith shall have forcibly guided contacts according to Enligt EN 60947-5-1:2004.

- Any contactors or relays for emergency electrical operation shall have forcibly guided contacts according to EN 60947-5-1:2004.


SLAG+AUTOMATDÖRR
VID ENDAST AUTOMATDÖRR TAS SLAGDÖRRKONTAKTER
OCH BYPASS SLAGDÖRRKONTAKTER BORT.
UTGÅNG ÄR TILL NÄR BYPASS DÖRRAR ÄR TILL
OCH HISSEN INSPEKTIONSKÖRS/TVÅNGSKÖRS.
VID TVÅNGSKÖRNING KAN HISSEN
KÖRA FÖRBI SERVICEGRÄNSLÄGEN.
VID RESET UCM, DRA LÅSBANA
OCH STÄNG KORGDÖRR
KiDcu1
KiDcu2
KiUcm
KiCrc
KORGCPU
-XC613
-XC614
INSP. GROP
INSP. KORG
SÄKERHETSKRETS SLAG+AUTOMAT
REV.18
Kinds Elteknik
512 63 O.FROLUNDA
SWEDEN
TEL: 0325-187 00
Datum 2018-02-28
Redigerare FK
Kontollerad
Kontollerad
Ursprung
Ändring
Datum
Namn
Ersättning för
Ersatt av
Blad 1
+17.2/1
= + 18

Test instructions:

Monitoring of car door contacts and landing door lock

1.
Jumper on car door contact:

KiDcs1:
To perform the test the lift has to be in normal operation.
Test procedure:
Connect a jumper on the car door contact or the terminals in the control cabinet.
For example. *(between terminal 40 and 41 on terminal strip X1)* **(NOTE 230V).**
Run the lift on car call or via the Vision control system, make sure the jumper is connected during the whole trip and during the door cycle.
Alarm code:
KiDcs: alarm XX:0001. Will be show in the display on the KiLine Vision controller. Make sure Normal operation of the lift is neutrilized.

2.
Jumper on landing door locking contact:

KiDcu1:
To perform the test the lift has to be in normal operation.
Test procedure:
Connect a jumper on the landing door locking contact or the terminals in the control cabinet.
For example (between terminal 42 and 43 on terminal strip X1) **(NOTE 230V).**
Run the lift on car call or via the Vision control system, make sure the jumper is connected during the whole trip and during the door cycle.
Alarm code:
KiDcs: alarm XX:4000. Will be shown in the display on the KiLine Vision controller. Make sure Normal operation of the lift is neutrilized.

NOTE! If the Bypass switch is activated during test alarm XX:4000 will be shown in the KiLine Vision controller and normal operation of the lift will be neutralized.

3.
Jumper on car door monitoring contact:

KiDcu1:
To perform the test the lift has to be in normal operation.
Test procedure:
Connect a jumper on the car door contact or the terminals in the control cabinet.
For example. *(between terminal 24V+ and 294 on terminal strip X1)*
Run the lift on car call or via the Vision control system, make sure the jumper is connected during the whole trip and during the door cycle.
Alarm code:
KiDcs: alarm XX:0020. Will be show in the display on the KiLine Vision controller. Make sure Normal operation of the lift is neutrilized.

Test instructions:
Bypass automatic doors

1.
Landing door contact:

KiDcs:
To perform the test the lift has to be in inspection operation.
Test procedure:
Run the lift on inspection from the car roof.
Stop when you can reach to open a landing door.
Open the landing door and keep it open.
Try to run the lift on inspection with open landing door.
Result:
It should NOT be possible to run the lift on inspection with open landing door.

2.
Bypassed landing door contact:

KiDcs:
To perform the test the lift has to be in inspection operation.
Test procedure:
Run the lift on inspection from the car roof.
Stop when you can open a landing door.
Open the landing door and keep it open.
Turn the bypass switch to ”Shaftdoor”.
Try to run the lift on inspection with open landing door.
Result:
It should be possible to run the lift on inspection with open landing door. There should also be an audible signal beeping while running on inspection.

NOTE! It is recomended to be two persons while performing bypass tests.

3.
Korgdörrskontakt:

KiDcs:
To perform the test the lift has to be in inspection operation.
Test Procedure:
Run the lift on inspection from the car roof.
Stop between two floors. Disconnect connector XC211 (car door contact) in the car top junction box.
Try to run the lift on inspection with the connector disconnected.
Result:
It should NOT be possible to run the lift on inspection with open car door contact.

4.
Bypassed car door contact:

KiDcs:
To perform the test the lift has to be in inspection operation.
Test Procedure:
Run the lift on inspection from the car roof.
Stop between two floors. Disconnect connector XC211 (car door contact) in the car top junction box.
Turn the bypass switch to ”Car door”.
Try to run the lift on inspection with the connector disconnected.
Resultat:
It should be possible to run the lift on inspection with open car door contact. There should also be an audible signal beeping while running on inspection.
NOTE! The monitoring contact on the car door is checking the door is in the closed position. It is NOT possible to run the lift at any time with open car door.

Test instructions:
Bypass swing door

1.
Landing door contact:

KiDcs:
To perform the test the lift has to be in inspection operation.
Test procedure:
Run the lift on inspection from the car roof.
Stop when you can reach to open a landing door.
Open the landing door an keep it open.
Put a jumper on the locking contact and make sure the locking circuit is closed.

Try to run the lift on inspection with open landing door.
Resultat:
It should NOT be possible to run the lift on inspection with open landing door

2.
Bypassed schaktdörrskontakt:

KiDcs:
To perform the test the lift has to be in inspection operation.
Test procedure:
Run the lift on inspection from the car roof.
Stop when you can reach to open a landing door.
Open the landing door an keep it open.
Put a jumper on the locking contact and make sure the locking circuit is closed.
Turn the bypass switch to ”Shaft door”.
Try to run the lift on inspection with open landing door.
Result:
It should be possible to run the lift on inspection with open landing door. There should also be an audible signal beeping while running on inspection.

Remove the jumper from the locking contact:
It should NOT be possible to run the lift with open landing door contact and open locking contact at the same time.

3.
Låskontakt:

KiDcs:
To perform the test the lift has to be in inspection operation.
Test procedure:
Run the lift on inspection from the car roof.
Stop when you can reach to open a landing door.
Open the landing door lock and make sure the locking contact is open.

Try to run the lift on inspection with open landing door lock.
Resultat:
It should NOT be possible to run the lift on inspection with open locking contact.

4.
Bypassed landing door locking contact:

KiDcs:

To perform the test the lift has to be in inspection operation.
Test procedure:
Run the lift on inspection from the car roof.
Stop when you can reach to open a landing door.
Open the landing door lock and make sure the locking contact is open.
Turn the bypass switch to ”Locking contact”.
Try to run the lift on inspection with open locking contact.
Result:
It should be possible to run the lift on inspection with open locking contact. There should also be an audible signal beeping while running on inspection.

Stop and physically open the landing door:
It should NOT be possible to run the lift with open landing door contact and open locking contact at the same time.

Functional description:

Levelling and relevelling with open door:

When the lift approaches a landing the KiDcs will compare the unlocking zone from the door zone sensor and the unlocking zone received from the encoder via the control system via CAN-bus. When both signals are active the **KiDcu1** will activate the safety relays and send a ”door zone OK” signal to the control system via CAN-bus. The control system will then open the doors.
When relevelling, the control system send a request about door zone OK to **KiDcu1**. **KiDcu1** will check the signals from the door zone sensor and the encoder. If both signals are active the KiDcu1 will activate the safety relays and send a ”door zone OK” signal to the control system. The control system will then be able to relevel the lift with open doors.

Monitoring of landing door locking contact, car door contact and monitoring signal on car door:

KiDcu1 monitores the contacts while the lift is at stand still on a landing in the unlocking zone.
When the lift approaches a landing the levelling function will activate the safety relays. **KiDcu1** will monitor that the input LDLC deactivates when the lift stops and the safety relays deactivates. If OK **KiDcu1** will activate the safety relays again for a very short time while monitoring the the input LDLC does not activate. This will indicate that all contacts are OK (ej byglade)

If the input LDLC does not deactivate when the lift stops and the safety relays deactivates a landing door locking contact has a jumper. At the same time as **KiDcu1** monitores the input LDLC it also monitores 230V input no. 4 on the KiLine Vision. If input 4 is also active it indicates that even the car door has a jumper. To separate monitor the car door contact (If input 4 is deactivated) the safety relays will be activated again, while the safety relays are active KiDcu1 will monitor the input LDLCD. If LDLC becomes active a car door contact has a jumper.

Monitoring of car door contact on lifts with dual entrance and simultaneous opening is done with the same procedure with the exception that the doors has to open and close in sequence with a small time difference in order to detect which door that might have a jumper. The detection is achieved by monitoring of input no. 23 on the car CPU I/O.

The car door monitoring contact is monitored on the inputs no. 2 & 3 on **KiDcu2**. The inputs should change position from active to inactive when doors are opening.

If the system detects a failure or a jumper on a contact, all normal operation will be neutrilized. In order to make sure that the system did not make a fault detection due to a mechanical fault, KiLine Vision makes 3 door cycles at the same time as the system performs the monitoring. If **KiDcu1** does not detect any failures during these door cycles, the elevator is released for normal operation.

Control of emergency electrical operation and deactivation of that during inspection control:

When the electrical operation switch is activated it will also activate input no. 4 on **KiDcu1**. **KiDcu1** will send this signal to **KiDcu2 via** CAN-bus which then activate the relay output to the emergency electrical operation contactor. The inputs from the monitoring contact on the car door on **KiDcu2** has to be active to activate the relay output. If the inputs IN2 and IN3 (AUX CDC 2&3) on **KiDcu1** is inactive the relay output will not be able to activate.
The emergency electrical operation contactor will neutrilize normal operation by harware. Normal operation is also neutrilized by software in **KiDcs.**
To be able to run the lift on emergency electrical operation a push button for up or down has to be pushed. Those buttons are connected to **KiDcu1**. **KiDcu1** will send the signal via CAN-bus to **KiDcu2** which will activate the safety relays. The safety relays activates electrical operation of the lift.

Upon activation of inspection control a signal will be send via CAN-bus from the KiLine Vision control system to **KiDcu1** and **KiDcu2**. **KiDcu2** will deactivate the relay output to the emergency electrical operation contactor. At the same time the relay output for inspection control in **KiDcu1** will be activated.
NOTE! This relay output is only used on lifts with crush risk in combination with KiCrc (separate manual).

Functional description:

Bypass:

Bypass of door contacts is activated via the bypass switch in the control cabinet. When turning the bypass switch from normal, normal operation of the lift will be neutrilized. At the same time a 24V signal will be sent to **KiDcu2** which controls emergency electrical operation and inspection operation.
The function of emergency electrical operation and inspection operation is exactly the same as without bypass.

Monitoring of extra final limit switches on lifts with crush risk in combination with KiCrc:

The extra final limit switches is connected to **KiDcu2** which controls emergency electrical operation and inspection inspection operation. There can be NO active crush risk alarms to be able to run the lift on emergency electrical operation. Emergency electrical operation is neutrilized by **KiCrc**.
If there is an active crush risk alarm **KiDcu2** will monitor the extra final limit switches while in inspection operation. Inspection operation will function as described on previous page with the exception that it is only allowed to drive the lift to the extra final limit switches.
KiDcu2 does not separate crush risk in pit and headroom which means that if only one crush risk area is activated, it will still only be possible to drive the lift to the extra final limit switch in both direction.

Alarms in KiDcu1

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).

Reset of alarm: Some alarms will be reset automatically when everything is OK, and some alarms has to be reset manually. For manual reset, press the reset button for approx. 3 seconds, the alarm will be reset when releasing the button.
Alarms can NOT be reset if not all 230V inputs (1-4) on the KiLine Vision is active.

No. of blink	Code in Vision	Description	Cause	Solution
1	XX:0001	Monitoring of car door contact(s)	Bridged car door contact	Check the car door contact(s) for jumper(s) OR, the whole car circuit is bridged Remove jumpers / bridges Manual reset
2	XX000:2	KiDcu1 Check	The alarm might arise at test, when the safety relays is activated and the input LDC on the KiLine Vision control system does not become active	Check the connection from KiDcu1 E102:14 to KiLine Vision X00:5, see wiring diagram page 10 If the connection is OK, there might be a faulty input X00:5 on KiLine Vision Manual Reset
3	XX:0004	Monitoring of car door onitoring contact.	This alarm bevomes active When LDLC on KiDcu1 is inactive and IN3 on KiLine Vision is active or vice versa.	Check the monitoring contact(s) on the car door. Close the car door. Make sure that the contact closes electrically upon closing of car door and check for jumpers on the contact. Manual reset
4	XX:0008	Not in use		
5	XX:0010	Reset button error	Reset button pushed or stuck	Check the reset button
6	XX:0020	Monitoring of jumpers on monitoring contact on car door(s)	Monitoring contact on car door always in closed position. Could also be a mechanical fault on the car door operator.	Check the car door monitoring contact for jumpers. Disconnect any jumpers. Manual reset

Continuation >>>>

Alarms KiDcu1

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No. of blink	Code in Vision	Description	Cause	Solution
7	XX:0040	Self test	LDLC on KiDcu1 has not become inactive in 30 days.	An automatic self test is performed after 30 days if LDLC on KiDcu1 has not become inactive during a period of 30 days.
8	XX:0080	The unit is not registered	The serialnumber of the unit have not been registered on the KiGate website.	Contact Kinds Elteknik AB to get elp with registration. **NOTE! An internet connection is needed to be able to register the unit!**
9	XX:0100	Checksum error		Contact Kinds Elteknik AB
10	XX:0200	Watchdog error		Contact Kinds Elteknik AB
11	XX:0400	Zone error - missmatch in comparison of the zones from door zone sensor and encoder	Door zone in KiLine Vision is set to a higher value than half distance between magnets.	Adjust the magnets or the parameter 231.00 ”door zone” in the KiLine Vision control system. **NOTE! The parameter has to be set to a value lower than half the distance between the magnets.**
12	XX:0800	Faulty safety relay 1	Safety relay 1 is stuck	Contact Kinds Elteknik AB
13	XX:1000	Faulty safety relay 2	Safety relay 2 is stuck	Contact Kinds Elteknik AB
14	XX:2000	CAN-bus error	CAN-bus cable disconnected	Check the CAN-bus cable.
15	XX:4000	Landing door lock	Bridged landing door locking contact. Or, the landing door did not open when the opening command was sent.	Check the landing door locking contact for jumpers. Check the mechanics and movement of the landing door. Manual reset
16	XX:8000	Unit not initiated	Initiation has not been performed.	Contact Kinds Elteknik AB

Alarms in KiDcu2

No. of blink	Code in Vision	Description	Cause	Solution
1	XX:0001 limit switches.	Monitoring of extra final ime	Both inputs inactive at the same går till.	Check the final limit switches
2	XX:0002	Not in use		
3	XX:0004	Not in use		
4	XX:0008	Not in use		
5	XX:0010	Reset button error	Reset button pushed or stuck	Check the reset button
6	XX:0020	Not in use		
7	XX:0040	Self test	LDLC on KiDcu1 has not become inactive in 30 days.	An automatic self test is performed after 30 days if LDLC on KiDcu1 has not become inactive during a period of 30 days.
8	XX:0080	The unit is not registered	The serialnumber of the unit have not been registered on the KiGate website.	Contact Kinds Elteknik AB to get elp with registration. **NOTE! An internet connection is needed to be able to register the unit!**
9	XX:0100	Checksum error		Contact Kinds Elteknik AB
10	XX:0200	Watchdog error	Wathdog error Or, extra final limit switch eller att bridged to 24V+ or input 5 and/or 6 on KiDcu2 is active	Check the extra final limit switches and KiDcu2 for jumpers. Contact Kinds Elteknik AB
11	XX:0400	Not in use		
12	XX:0800	Faulty safety relay 1	Safety relay 1 is stuck	Contact Kinds Elteknik AB
13	XX:1000	Faulty safety relay 2	Safety relay 2 is stuck	Contact Kinds Elteknik AB
14	XX:2000	CAN-bus error	CAN-bus cable disconnected	Check the CAN-bus cable
15	XX:4000	Bypass active	The bypass switch is not in normal position	
16	XX:8000	Unit not initiated	Initiation has not been performed.	Contact Kinds Elteknik AB