

**Annex of EU-type examination certificate
NL13-400-1002-048-11**

Date of original certificate : 08-03-2013
Revision number / date : 5, 19-04-2021
Project number : P200414

1. Description

The ARCODE is a complete lift control unit. The lift control unit is a so called integrated lift control board. The control unit comprises the CPU Board, Display Board, IO Board, Encoder Board, EMC Filter and Power Board (VVVF inverter). Additionally a door bridging functionality (DBR board) and UCM Solenoid control such as ApRe or ApRemini board can be added to the unit.

To complete the electrical system of the lift there are interface boards for the controller (KBK-10 and KBK-11 for EN 81-1 lifts respectively KBK-12 and KBK-13 for EN 81-20 lifts), a control board in the inspection box and not safety related boards for the car panel, landing door and signalization.

Regarding relevant safety requirements the boards used in the lift control system contain monitoring points for safety chain, a door bridging circuit and several detection/monitoring functions (UCM detection, contactors/brake monitoring, out of service control...) which were the subject for the examination and tests.

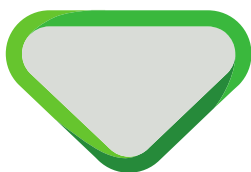
Depending on the characteristics of the lift the ARCODE can be programmed for the specific functions needed. When pre-opening and/or re-levelling is used ARCODE can detect UCM, monitor the brake switches or other mechanisms and activate the brake or a safety solenoid on the overspeed governor.

In case pre-opening or re-levelling with open doors is not installed and certified brakes are used with gearless machines (or directly mounted on the (axis of) traction sheave in case of geared machines) are used with, ARCODE can be used for monitoring the correct functioning of the brake. UCM test is in this case not required.

See annex 1 for a general overview of the product.

2. Safety related components

Limits of use	Terminals
CPU board (CPU_V1.xx*)	120/130/140/140P/10A/10B/ PR1, NO and COM / PR2, NO/PR3,NO/PR23,COM, PR4,NO and COM / RP, NO and COM with a maximum voltage of 230 VAC ML1 and ML2 with a maximum voltage of 24 VDC
DBR board (DBR_V1.xx*)	120/140/140P with a maximum voltage of 230 VAC ML1 and ML2 with a maximum voltage of 24 VDC
KBK-10 board (V1.xx*)	ML1 and ML2 with a maximum voltage of 24 VDC
KBK-11 board (V1.xx*)	110A/114/118/XHT1-B/10/120/130/135/140/10A with a maximum voltage of 230 VAC
KBK-12 board (V1.xx*)	110/110A/110B/110E/111/113/116/117/118/119A/ 120/130/133/135 137/140/XHT1-F1-5 and 10A with a maximum voltage of 230 VAC



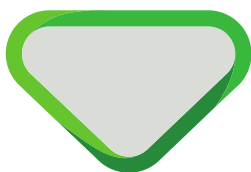
Limits of use continued	Terminals continued
KBK-13 board (V1.xx*)	ML1 and ML2 with a maximum voltage of 24 VDC
ApRe board (V1.xx*)	SFD and 10B with a maximum voltage of 230 VAC
ApRe board (V2.xx*)	
ApRemini board (V1.xx*)	SFD and 10B with a maximum voltage of 230 VAC
IBC Board (IBC_V1.xx*)	118/119A/119B/120/135/140/XHT2-B/LIM1/LIM2/PK1/PK2/STP1/STP2/HK1/HK2/KA1/KA2/KB1/KB2/KC1/KC2 with a maximum voltage of 230 VAC and ML1 and ML2 with a maximum voltage of 24 VDC
IBC-S (V1.xx*)	XHT2-D HD1-4/LIM1/LIM2/OG1/OG2/PK1/PK2/STP1/ STP2/HK1/HK2/KC1/KC2/KA1/KA2/KB1/KB2/118/119A/119B/ 120/135/137 and 140 with a maximum voltage of 230 VAC
IBC-S (V2.xx*)	ML1 and ML2 with a maximum voltage of 24 VDC
KDB (V1.xx*)	111/112/112A/112B/113/114/115/116/119A and 119B with a maximum voltage of 230 VAC
KDB (V2.xx*)	
DFC (V1.xx*)	10A/120/130/133/135/137/140/140P/140R and 10C with a maximum voltage of 230 VAC
DFC (V2.xx*)	
IBC-L (V1.xx*)	BR6/AR2AR3/BR4/BR4AR1/BR2/STP1/EM/118/119A/119B/120/135/137 and 140 with a maximum voltage of 230 VAC

* For the PCB's a version systematic is applied which allows updates of the PCB's without renewing the type certification. This is based on changes not related to the safety related circuits and components which were part of this certification. The second part of the PCB version numbering (xx) will increase with these kind of changes. The first number (V1) reflect the latest safety related update as certified. All changes will be communicated and archived in the technical file.

3. Conditions

Additional to the applicable demands in the considered requirements / standards (see certificate and/or page 1 of this report), the following conditions shall be taken into account:

- Incoming ground is connected to terminal 10A, the ground used for the main contactors and/or ApRe or ApRemini shall be supplied from terminal 10B.
- When the door-bridging option is used; the lift stops and maintains stationary when a fault in the A, B, C circuit or door-zone information occurs.
- The door-zone sensors activation must be monitored on proper operation by detecting the delayed activation of the second sensor after activation of the first.
- The door-zone magnet is properly fixed (e.g. screwed, glued).
- The manual and the operating instructions for UCMP including the required UCMP tests procedures need to be available for installation, maintenance and testing purposes.
- The AREM handheld device shall be available for maintenance and inspection.
- The installer of the lift needs to define the final solution taken into account the key-parameters of the control, the control panel and the stopping means. The maximum detection distance is variable and will standard be around 15cm (ML magnets). This might be too much for the application and needs then to be shortened to fit in into the total system and finally stop the lift within the required distances of EN 81-1+A3 clause 9.11.5 / EN 81-20 clause 5.6.7.5.
- In the final acceptance test it shall be verified that the correct functionality with the applied UCM protection means is activated and operates as intended (see firmware version, manual and EN 81-1+A3 resp. EN 81-20/50).
- Only at a complete run of the lift with the coil interface option a 2 sec. delay to drop the overspeed governor solenoid is allowed as soon as a (door) safety switch is opened. The coil interface relay is never energized at the floor, not even at re-leveling.



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- After detecting UCM the lift is kept out of service, also when the main power is switched off and on again.

4. Conclusions

The creepage distances and clearances are fulfilling the requirements of Clause 5.15 of the harmonized standard EN 81-50 resp. Annex H of standard EN 81-1+A3.

The photo-couplers used for galvanic separation between the safety chain and other circuits, the interface relays switching safety chain power to lift control means for functional operation, the safety relays used for safety circuits such as door bridging circuit for (re-)levelling operation and UCMP detection, are fulfilling the requirements of the harmonized standard EN 81-20/50 and EN 81-1+A3.

The key parameters for detecting UCM are:

Detection distance (variable) : ML magnets switching point

Max. response time DBR board : 10 ms

(Speed and distance need to be calculated by the installer of the lift)

Based upon the results of the EU-type examination Liftinstituut B.V. issues an EU-type examination certificate.

The EU-type examination certificate is only valid for products which are in conformity with the same specifications as the type certified product. The EU-type examination certificate is issued based on the requirements that are valid at the date of issue. In case of changes of the product specifications, changes in the requirements or changes in the state of the art, the certificate holder shall request Liftinstituut B.V. to reconsider the validity of the EU-type examination certificate.

5. CE marking and EU Declaration of conformity

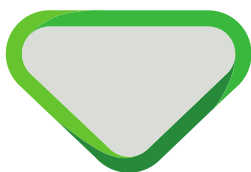
Every product that is placed on the market in complete conformity with the examined type must be provided with a CE marking according to art. 18 of the Lift directive 2014/33/EU under consideration that conformity with eventually other applicable Directives is proven. Also every product must be accompanied by an EU declaration of conformity according to annex II of the Directive in which the name, address and the Notified Body identification number of Liftinstituut B.V. shall be included as well as the number of the EU-type examination certificate.

An EU-type certified safety component shall be random checked, for example according to annex IX of the Lift directive 2014/33/EU before these safety components may be CE-marked and may be placed on the market. For further information on random checking by Liftinstituut, see regulation 2.0.1 'Regulations for product certification' on www.liftinstituut.com.

Prepared by:

P.J. Schaareman
Product Specialist Certification
Liftinstituut B.V.

Certification decision by:

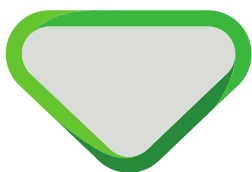


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Annex 1a. ARCODE Controller



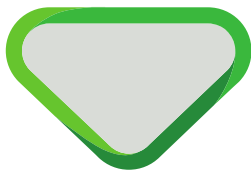


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Annex 1b. ARCODE Controller showing optional board DBR





Annex 2. Documents of the Technical File which were subject of the examination

Title	Document number	Date
Arcode monitoring functions	ARK-0001 v6	25-09-2013
ARCODE CPU&DBR Risk Analysis	ARK-0002 v2	05-04-2013
Arcode ucm analyses	ARK-0003 v2	14-05-2013
ApRe Mini Risk analizi	ARCODE-LITA-0002 v2	05-04-2013
ApRe_mini_connection_25.03.2013	V:25/03/2013	05-04-2013
ApReMini_v100_25.03.2013	V1.00	05-04-2013
ApRe control board	NL12-400-1002-048-10 rev1	24-04-2012
Arcode_Cpu_V105_25.03.2013	V1.05	05-04-2013
Arkel version numbering system	ARK-STD-0001	05-04-2013
DBR_V102_25.03.2013	V1.02	05-04-2013
lift_inst_asenkron_apReMini_sp16 (electrical diagram)	V1.0	05-04-2013
IBC_V1.03	V1.03	05-04-2013
KBK-10_V101	V1.01	05-04-2013
KBK-11_V101	V1.01	05-04-2013
Arcode Parameter Editor (program)	V:24/07/2013	24-07-2013
help_en (Arcode Parameter List)	V:21/06/2013	24-07-2013
arcodes_hardware_manual	V1.00	24-07-2013
arcodes_inputs_outputs_man	V1.00	24-07-2013
arcodes_parameters_ref_man	V1.00	24-07-2013
CPC_HW_MAN_V101_EN	V:1.01	24-07-2013
ARCODE EMC sertifika	EMC-2012314C	10-02-2013
EMC ARKEL 2012314R_ARCODE	EMC-2012314	10-02-2013
ARCODE EMC Sertifika 35A-50A	EMC-2013359C	08-02-2014
ARCODE EMC Rapor 35A-50A	EMC-2013359	08-02-2014
Additional UCMP solenoid option	ARCODE UCM-OSG EN V1	17-08-2015
Update information IBC-S, KDB, KBK-12, KBK-13, DFC and IBC-L (& EXP)	Arkel documents sev updates 26.06.2018	26-06-2018
List of approved safe components used in safety related parts of the PCB	ARKEL Safety approved components 28-08-2018	28-08-2018
Test report Arcode	F4-66 Test report Arcode NL13-400-1002-048-11	19-04-2021

Annex 3. Reviewed deviations from the standards

No deviations from the standard.

Annex 4. Revision of the certificate and its annex

Rev.:	Date	Summary of revision
-	20-04-2016	Original.
1	07-11-2014	Update with additional EMC test certificates references
2	04-09-2015	Addition of UCMP overspeed governor coil control option
3	20-04-2016	Update to EN 81-20, EN 81-50 and EU type-examination certificate
4	28-08-2018	Update with KBK12, KBK13, IBC-S, KDB, DFC and IBC-L boards.
5	19-04-2021	5-yearly assessment, renewal of certification, update to EN 81-20/50:2020 version, corrections, design check PCB's (KBK-12, DFC, KDB, and IBC-S V2.00) and implementing the "Annex to certificate".