

EU-TYPE EXAMINATION CERTIFICATE

Issued by Liftinstituut B.V.
identification number Notified Body 0400,
commissioned by Decree no. 2018-0000125182

Certificate no. : NL20-400-1002-335-01 Revision no.: -

Description of the product : Lift control unit for electric or hydraulic lifts with monitoring circuit for safety chain, door bridging circuit, detection of uncontrolled movement of the car (UCMP) and brake monitoring (ACOP/UCMP)

Trademark : Semitron S.A.

Type no. : NOUS control, SB and SZ board

Name and address of the Manufacturer : Semitron S.A.
Industrial area of Sindos
P.C. 57022, Thessaloniki
Greece

Name and address of the certificate holder : Semitron S.A.
Industrial area of Sindos
P.C. 57022, Thessaloniki
Greece

Certificate issued on the following requirements : Lifts Directive 2014/33/EU

Certificate based on the following standard : EN 81-20:2014, clause 5.6.6.2, 5.6.7.3, 5.6.6.7, 5.6.7.9, 5.11.1, 5.11.2.1.2 and 5.11.2.3
EN 81-50:2014, clause 5.8 and 5.15

Test laboratory : None

Date and number of the laboratory report : None

Date of EU-type examination : October 2019 – January 2020


Additional document with this Certificate : Report belonging to the EU type-examination certificate no.: NL20-400-1002-335-01

Additional remarks : Key parameters for detecting UCM
Detection distance: installed door-zone (variable)
Max. response time NOUS control : 10ms
Speed and distance travelled : to be calculated


Conclusion : The safety component meets the requirements of the Lifts Directive 2014/33/EU taking into account any additional remarks mentioned above.

Amsterdam

Date : 23-01-2020
Valid until : 23-01-2025



ing. P.J. Peeters
Manager Certification



Certification decision by

Report EU-type examination

Report belonging to EU-type examination certificate number	: NL20-400-1002-335-01
Date of issue of original certificate	: January 23, 2020
Certificate applies to	: Component
Revision number / date	: -
Requirements	: Lifts Directive 2014/33/EU Standards: EN 81-20:2014, clause 5.6.6.2, 5.6.7.3, 5.6.6.7, 5.6.7.9, 5.11.1, 5.11.2.1.2 and 5.11.2.3; and EN 81-50:2014, clause 5.8 and 5.15
Project number	: P190285

1. General specifications

Description of the product	: Lift control unit for electric or hydraulic lifts with monitoring circuit for safety chain, door bridging circuit, detection of uncontrolled movement of the car (UCMP) and brake monitoring (ACOP/UCMP)
Trademark	: Semitron S.A.
Type no.	: NOUS control, SB and SZ board
Name and address of the manufacturer	: Semitron S.A. Industrial area of Sindos P.C. 57022, Thessaloniki, Greece
Laboratory	: None
Address of examined component	: Semitron S.A. premises
Date of examination	: October 2019 – January 2020
Examination performed by	: P.J. Schaareman

2. Description lift safety component

The NOUS control is a complete lift control unit from Semitron for lifts. The unit comprises the user interface (touch screen), a CPU Board, an IO Board, a safety chain board and a safety circuit board.

The control unit contains monitoring points for the safety chain, a door bridging circuit and several detection/monitoring functions (UCM detection, contactors, ACOP/UCMP brake monitoring, out of service control...). Depending the characteristics of the lift the NOUS control can be programmed for the specific functions needed.

When pre-opening and/or re-levelling is used the NOUS control can detect UCM and perform the activation of the braking element. A special menu option for UCM test is available. The safety related functions and circuits of the control unit were subject for the examination and tests.

The NOUS control door bridging functionality is based on a two-channel safety circuit which bridge the door safety switches when the car is in the door unlocking zone. It operates with two independent door zone information channels. When an error in one of the door zone channels occurs, the door zone bridging will not be activated, and give an error.

Channel 1 is connected to a magnetic switch, via connector X29, signal is "MEC_DZ_SENSOR".

Channel 2 is an internal signal provided by the CPU controller. The input name is "AT_ZON_SET" and obtained from the SZ board connection.

To enable the door zone bridging, a signal must be placed on EN_BR_SC, this signal is active when the lift car speed is under 0,8 m/s when arriving with pre-opening of the doors. When the car is re-levelling the EN_BR_SC signal is active as long as the car speed is below 0,3 m/s.

Door bridging is only possible when the correct sequence has taken place. A fault in this safety circuit will result in an interruption of the sequence and bridging of the door safety switches is not possible anymore. The lift will be blocked for further operation.

The detection distance is reliant to the door zone length of the magnet and AT_ZON_SET. Normally this length will be about 15cm. In case a smaller door zone is required to decrease speed development and reaction distance, the door zone can be shortened (this will lower the functional distance for pre-opening of the doors).

See annex 1 for a general overview of the product

Technical details	: NOUS Control
CPU Board	: NOUS CPU BOARD Vx.x (not safety related)
IO Board	: NOUS IO BOARDS Vx.x (not safety related)
Safety Chain Board	: NOUS SB BOARD V1.03 (SC monitoring and interface)
Safety Circuit Board	: NOUS SZ Board V1.00 (door bridging safety circuit)
Safety chain	: Max. 230 VAC
Safety chain fuse	: Max. 4 A
Temperature	: -25°C - +60°C
Altitude	: Up to 2000m above sea level
Degree of protection	: IP00

Limits of use for component	: Terminals
NOUS CPU BOARD Vx.x	: No safety related connections
NOUS IO BOARDS Vx.x	: No safety related connections
NOUS SB BOARD V1.03	: X13:1-3; Interface relay input/output for safety chain with a maximum voltage of 230 VAC X14:1-3 Interface relay input/output for safety chain with a maximum voltage of 230 VAC X14:1-3 Interface relay input/output for not safety chain related circuits with a maximum voltage of 24 VDC X14:4 and 5; Interface relay input/output for safety chain with a maximum voltage of 230 VAC X15:1-3; Interface relay input/output for safety chain with a maximum voltage of 230 VAC X15:1-3; interface relay input/output for not safety chain related circuits with a maximum voltage of 24 VDC X17:2-7; Safety chain monitoring inputs with a maximum voltage of 230 VAC X17:1 and 8; Neutral (GND) for safety chain
NOUS SZ Board V1.00	: X28:1 and 2; Safety chain with a maximum voltage of 230VAC X29 and SB board interface door zone sensor circuit with a maximum voltage of 24 VDC

3. Examinations and tests

The examination covered a check whether compliance with the Lift Directive 2014/33/EU is met, based on the harmonized product standards EN 81-20 and 50. Issues not covered by or not complying these Standards are directly related to the above-mentioned essential requirements and further examined based on risk assessment resp. failure analyses.

The examination included:

- Examination of the technical file (See annex 2).
- Examination of the representative model in order to establish conformity with the technical file.
- Inspections and tests to check compliance with the requirements.
- An assessment of the relevant information of the component to check, register and report the relevant key interface parameter(s) of the component to be used for UCM protection.

The NOUS control unit has three safety related parts:

- part for monitoring the safety circuit,
- a part which controls the door bridging and
- a part providing interfaces between safety chain and e.g. main contactors.

NOUS SB BOARD:

Safety chain monitoring taps are connected to terminal X17.

Safety chain can be used with potential free interface relays available on terminals X13, X14 and X15.

NOUS SZ BOARD:

The door safety switches bridging is connected to terminals X28:1 and X28:2.

The door zone sensor circuits are connected to terminal X29 and the SB board interface.

The highest voltage used for the safety-circuit is 230 VAC.

The highest voltage used for other circuits is 24 VDC.

According to EN 81-50 clause 5.15 the creepage and clearance distances shall fulfill the requirements of the IEC 60664-1 taking into account:

- pollution degree 3
- material group III
- inhomogeneous electrical field
- over-voltage category III
- printed wiring column not used

Creepage and clearance distances need to fulfil the following requirements:

Outer layers:

For 230 VAC these distances shall be 4.0mm for creepage and 3.0mm for clearance.
For 24 VDC these distances shall be 1.25mm for creepage and 0.8mm for clearance.

Inner layers:

For 230 VAC the creepage distances shall be at least 2.5mm.
For 24 VDC the creepage distances shall be at least 0,5mm.

Furthermore, the examination included assessment of the relevant information of the components to be certified and tests and inspections to check, register and report the relevant key interface parameters of the component to be used for UCMP detection.

4. Results

The creepage distances and clearances between terminals, connected to the safety chain and tracks behind these terminals to each other and to another voltage fulfill the above (chapter 3) mentioned distances.

The photo-couplers HCPL-814, the interface relays OMRON G6DN and SCHRACK PE, the safety relays SCHRACK SR4 and SR6 and connectors fulfill the requirements of the standard EN 81-20 and 50.

Due to limited distance of track X15:2 and X15:3 to X14:1 the interface relays RL1 and RL6 on terminals X15 and X14:1-3 are only to be used with safety chain with a maximum voltage of 230 VAC or other not safety related circuits with a maximum voltage of 24 VDC.

After the final examination the NOUS control and the technical file were found in accordance with the requirements. The fault analyses showed that single failures do not lead to a dangerous situation. The functional and fault insertion tests passed successfully without remarks.

The key parameters for detecting UCM are:

Detection distance	: installed door-zone (variable)
Max. response time NOUS control	: 10 ms
Speed and distance travelled	: to be calculated
Monitoring functions	: available

The NOUS control is designed as a safety system. The system checks the proper operation of the applied components. The required diagnostic functions are provided. If due to the diagnostic functions in the system a fault is recognized, further movement of the car is prevented. A manual reset is necessary to bring the system in operation again provided that no errors in the system exist.

5. Conditions

Additional to or in deviation of 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:

- The NOUS control unit needs to be applied, connected and installed according the Semitron S.A. operating instructions.
- The NOUS control unit needs to be commissioned and maintained according the Semitron S.A. operating instructions.
- The NOUS control unit operating instructions needs to be available at the lift for installation, maintenance and testing purposes.
- When the door-bridging option is used; the lift stops and maintains stationary when a fault in the door bridging safety circuit or door-zone information occurs.
- When the door-bridging board is required to detect UCM, the lift is kept out of service after detecting an UCM event. The release or the reset shall require the intervention of a competent person, also when the main power is switched off and on.
- The potential free relay contact of R1 and R6 on terminals X15 and X14:1-3 are to be used with safety chain with a maximum voltage of 230 VAC or otherwise with not-safety related circuits with a maximum voltage of 24 VDC.
- The installer of the lift needs to define the final solution taken into account the key-parameters of the NOUS control unit and the stopping means.
- If applied for UCMP the delay time needs to be taken into consideration, a delay time of 10ms needs to be taken in account to open the safety chain after leaving the door zone with open doors.

6. Conclusions

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 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 certificate.

7. CE marking and EU Declaration of conformity

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

An EU type-certified safety component shall be random checked e.g. 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 see regulation 2.0.1 'Regulations for product certification' on www.liftinstituut.com.

Prepared by:



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Product Specialist Certification
Liftinstituut B.V.

Certification decision by:

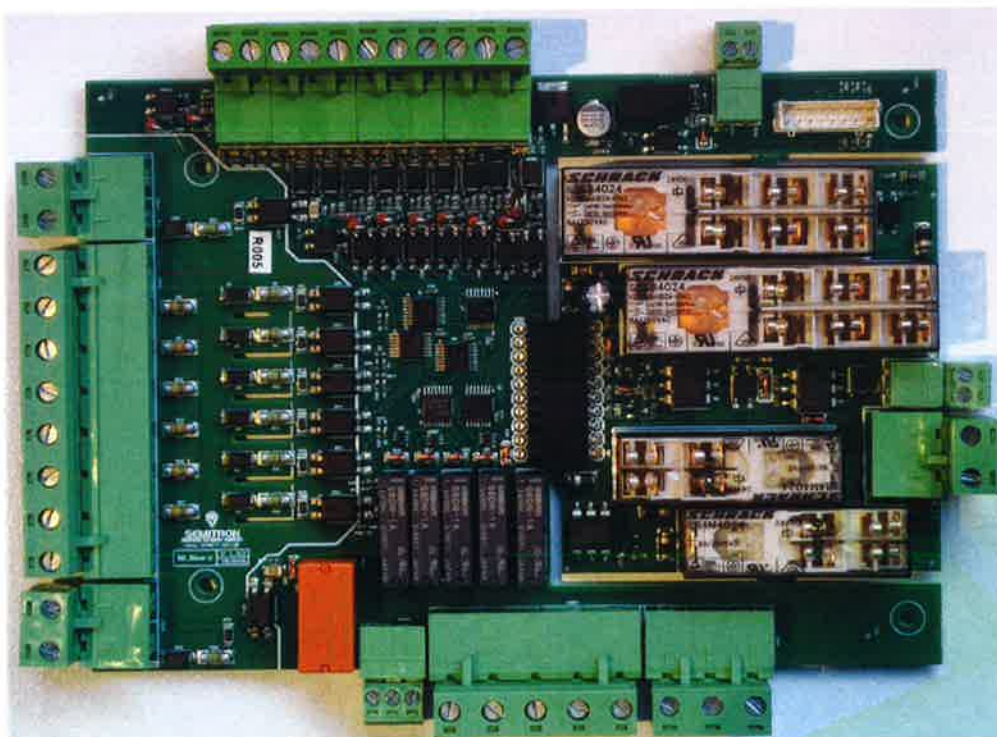


Annexes

Annex 1a NOUS control unit and its touch screen interface



Annex 1b SB and SZ boards ("integrated")



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

Title	Document number	Date
Component list and all relevant datasheets of components used on SB and SZ board	Lift_Institute_Technical_Folder_2019_12_02/datasheets	02-12-2019
Electrical schematics and complete HW design file of the NOUS SB-board	ZIP FILE SCHEMATICS.PCB_SB_BOARD	02-12-2019
Electrical schematics and complete HW design file of the NOUS SZ-board	ZIP FILE SCHEMATICS.PCB_SZ_BOARD	02-12-2019
Electrical diagram SB and SZ board application	Nous_Electrical_Diagrams	02-12-2019
Overview of the Safety Chain (SB) and Safety Circuit (SZ) Board of Nous-lift controller system for type approving	NOUS_type examination v1.01	02-12-2019
NOUS manual	NOUS_Software_Manual	17-01-2020
NOUS in lift control application	Nous example	17-01-2020

Annex 3 Reviewed deviations from the standards

No deviations of EN81-20 and EN81-50

Annex 4 Revision of the certificate and its report

Rev.:	Date	Summary of revision
-	23-01-2020	Original