

# EU-TYPE EXAMINATION CERTIFICATE

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

Certificate no. : NL03-400-1002-004-30 Revision no.: 5

Description of the product : Safety circuit used for bridging of car door and landing door (lock) contacts during levelling and re-levelling as well as detection of unintended car movement (UCMP)

Trademark : Schindler

Type no. : SUET 3.Q (id.nr. 591811)

Name and address of the manufacturer : Schindler Supply Chain Europe Ltd – Locarno Branch  
Via della Pace 22, CH – 6600 Locarno – Switzerland  
and  
Sanmina-SCI Systems (Thailand) Ltd.  
90 Moo 1, Tiwanon Rd, Banmai, Pathum Thani - Thailand

Name and address of the certificate holder : Schindler Supply Chain Europe Ltd – Locarno Branch  
Via della Pace 22, CH – 6600 Locarno – Switzerland

Certificate issued on the following requirements : Lifts Directive 2014/33/EU, Annex IV no. 6

Certificate based on the following standard : EN 81-20 article 5.6.7.7, 5.11.1, 5.11.2.1.2 and EN 81-50 article 5.6, 5.8.3 and 5.15  
EN 81-1+A3 article 9.11.7, 14.1.1, 14.1.2.1.3, annex H, F.6 and F.8.3  
EN 81-2+A3 article 9.13.7, 14.1.1, 14.1.2.1.3, annex H, F.6 and F.8.3

Test laboratory : Liftinstituut / TecnoLab

Date and number of the laboratory report : 28-10-2003; RP017903

Date of EU-type examination : October 2003; Rev.1; January 2007, Rev.2; March 2008, Rev.3; March - May 2015; Rev.4; September 2015 Rev.5; May 15-20, 2020

Additional document with this certificate : Report belonging to the EC type-examination certificate No.: NL03-400-1002-004-30 rev.5

Additional remarks : The printed circuit board is subjected to the laboratory tests according to clause 5.6 of EN 81-50 resp. annex F.6 of EN 81-1/2+A3.  
Key parameter(s) for detecting UCM:  
Max. response time after leaving the door zone : 10 ms

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

Amsterdam

Date : 29-05-2020 ing. P.J. Peeters  
Valid until : 19-06-2025 Manager Certification

Certification decision by

## Report EU-type examination

Report belonging to EU-type examination certificate number : NL03-400-1002-004-30

Date of issue of original certificate : November 27<sup>th</sup>, 2003

Certificate applies to : Safety component Printed Circuit Board

Revision number / date : Rev.5 / May 29, 2020

Requirements : Lifts Directive 2014/33/EU  
Standards:  
EN 81-20:2014 article 5.11.1, 5.11.2.1.2 and  
EN 81-50:2014 article 5.6 and 5.15  
EN 81-1:1998 + A3:2010 article 9.11.7, 14.1.1,  
14.1.2.1.3, annex H, F.6 and F.8.3  
EN 81-2:1998 + A3:2010 article 9.13.7, 14.1.1,  
14.1.2.1.3, annex H, F.6 and F.8.3

Project number : P200079

## 1. General specifications

Description of the product : Safety circuit used for bridging of car door and landing door (lock) contacts during levelling and re-levelling as well as detection of unintended car movement (UCMP)

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90 Moo 1, Tiwanon Rd, Banmai  
Pathum Thani – Thailand

Laboratory : TecnoLab Italy

Date / Data of examination : Original; October 2003;  
Rev.1; January 2007, Rev.2; March 2008,  
Rev.3; March - May 2015; Rev.4; September 2015  
Rev.5; May 15, 2020

Examination performed by : D. Lantsink / J.L. van Vliet / T.M.J. Molema  
P.J. Schaareman

## 2. Description safety component

The printed circuit board SUET 3.Q is used when door levelling or re-levelling is required. In order to enable this operation, it is necessary to bypass the door contacts/door locking contacts.

The PCB consists of several safety relays (RUET, RUET1, RKUET and RFUET) which form a safety circuit able to bridge the door safety contacts.

The door zone signals e.g. KUET/KUET1 (magnetic sensors) or PHUET/PHS (optical sensors) are used for activation of the safety relays RUET and RUET1.

The levelling speed is checked by the microprocessor of the lift control, the safety relay RFUET is activated in case the (re-)levelling speed has been reached.

The change of state of the door zone signals KUET/KUET1 or PHS/PHUET has to be established within a certain delay time (between 130 and 180 msec.).

The purpose of this delay time is to be able to activate both relays RUET and RUET1 in case the door zone signals are not activated at exactly the same time.

Control relay RKUET is connected to the “electronic time delay circuit” and will be de-energized with a delay (may vary between 130 and 180 msec.).

The SUET 3.Q can also be used to detect unintended movement of the car while a car or landing door is open. Together with a certified braking system it can offer an UCMP solution for the lift installed. The controller used in the lift must take care of the other additional features and items relevant for UCM protection such as monitoring the functionality of the machine brake, monitoring the functionality of safety valves, keeping the lift out of service after detection of an UCM event and/or proper operation of the SUET 3.Q board. The SUET 3.Q board is just a safety circuit, no programming of special functions is possible.

The detection distance depends on the length of the door zone sensors used. Normally this length will be about 240mm. In case that a door zone is required to be less to decrease the reaction distance, the door zone can be shortened (this will lower the functional distance for pre-opening of the doors).

SUET 3.Q is applied in Schindler’s 3100/3300/3600/6300 (BIC family) and 6200 (BX family) and MOD TR systems. It might be applied in other systems as long as the relevant conditions of this certificate are fulfilled.

Specifications	: SUET 3.Q
Description	: Safety circuit used for bridging door safety switches during levelling
Application	: 3100/3300/3600/6300 system (BIC family), 6200 system (BX family), MOD TR and other systems fulfilling the conditions of this certificate
Limits of use	: Safety-line circuit voltage maximum 125 VAC/DC, Safety-line circuit current maximum 1000mA, Voltage safety relays 20,5 VDC
Operating temperature	: +0 °C to +65 °C
Humidity	: 85% non-condensing relative humidity
Altitude	: Up to 2000m above sea level

See annex 1 for a general overview of the product

### 3. Examinations and tests

The SUET 3.Q is a control board for electric and hydraulic lifts and controls the door bridging. The door-bridging circuit is designed as a safety circuit capable of bridging the door and door-lock safety switches. This circuit is also used for detecting UCM of the lift.

The safety relays on the PCB form a so-called A, B, C circuit. Any fault which can occur will result in a safe-state situation by the circuit itself. Faults in this circuit need to be detected by the lift control to keep the lift out of service.

The examination covered a check whether compliance with the Lift Directive 2014/33/EU is met, based on the harmonized product standards EN 81-20/50:2014. The component is also checked on compliance to EN 81-1/2:1998 + A3:2010.

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.

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

The safety circuit of the lift is connected to SUET 3.Q on terminals of XSCUET. Door zone information / sensors are connected to SUET 3.Q on terminals of XPHIO1, XSIH, XPHUET1 and/or XPHUET2.

The lift control and power supply are connected to SUET 3.Q with terminal Control  
The highest voltage used for the safety-circuit is 125 VAC/DC.  
The highest voltage used for the safety relays is 20,5 VDC

According to Clause 5.15 of the EN 81-50 resp. Annex H of the EN 81-1/2+A3 the creepage and clearance distances shall fulfill the requirements of the IEC 60664-1 (EN 60664-1) taking into account:

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

For 125 V these distances shall be 2.4mm for creepage and 1.5mm for clearance.  
For 24 V these distances shall be 1.25mm for creepage and 0.8mm for clearance.

## 4. Results

The creepage distances and clearances between terminals, connected to the door bridging circuit, safety-circuit and tracks behind these terminals to each other and to another voltage do fulfil the above mentioned distances.

The Hengstler safety relays R718 T3 and R721 T3 fulfill the requirements of the harmonized standard EN 81-1/2.

A failure analysis for the electronic time delay circuit is required.

After each levelling sequence the time delay circuit is discharged totally, so control relay RKUET cannot be activated in case door zone relay RUET or RUET1 does not fall off as a result of a failure.

Even in case an electronic component in the time delay circuit fails, a dangerous situation in the safety circuit cannot take place.

Schindler declares that the time delay is between 130 and 180 msec.

The optical sensors are not tested by Liftinstituut as part of this EU-type examination according to clause 5.11.2.5 of EN 81-20 resp. par. 14.1.2.5 of EN-81-1/2.

The magnetic sensors KUET/KUET1 are in accordance with clause 5.11.2.5 of EN 81-20 resp. par. 14.1.2.5 of EN 81. These sensors are already in use for the safety circuits MXUET and SUET 1.Q.

The door bridging circuit (safety component) shall also fulfil the requirements of clause 5.6 of EN 81-50 respectively Annex F.6 of EN 81-1/2+A3 concerning:

- Vibration test
- Shock test
- Temperature test

The tests are performed at an independent test laboratory, on request of Schindler.

After testing the printed circuit board SUET 3.Q the Liftinstituut received a copy of the test results from the test laboratory. These test results are satisfactory.

The PCB SUET 3.Q is in accordance with the requirements of Annex F.6 of EN 81-1/2 resp. article 5.6 of EN 81-50.

After the final examination, the Printed Circuit Board and the relevant parts of the technical file were found in accordance with the requirements. The functional tests passed without remarks.

The key parameters for detecting UCM are:

Detection distance	: Door zone magnets (KUET., PHUET.)
Max. response time LiSA20	: 10 ms
Speed and distance travelled	: to be calculated
Monitoring functions	: not available on SUET 3.Q

## 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 capacitors C14 and C15 on the printed circuit board SUET 3.Q are not allowed to be used/mounted.
- Door zone inputs for the door bridging circuitry shall comply with article 14.1.2.1.6 and 14.1.2.5 of EN 81-1/2 + A3 resp. article 5.11.2.1.5 and 5.11.2.5 of EN 81-20.
- The lift is kept out of service after detecting an error in the door bridging circuitry or UCM event. Its release or the reset shall require the intervention of a competent person, also when the main power is switched off and on.
- When SUET 3.Q is applied as UCMP detection Schindler needs to define the final solution taken into account the key-parameters of the SUET 3.Q, the controller and the stopping means.

## 6. Conclusions

The creepage distances and clearances are according to the requirements of clause 5.15 of the harmonized standard EN 81-50 and Annex H of the standard EN 81-1/2. The door bridging circuit (safety component) is in accordance with the requirements of the harmonized standard EN 81-20/50 and standard EN 81-1/2+A3.

The safety-relays RUET, RUET1, RKUET and RFUET, used for bridging the door contacts, are according the requirements of the harmonized standard EN 81-20/50 and standard EN 81-1/2+A3.

The testing of this PCB about vibration, shock and temperature was concluded to be sufficiently covering the tests required by EN 81-50 clause 5.15 and EN 81-1 Annex F.6. 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, every 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](http://www.liftinstituut.com).

Prepared by:



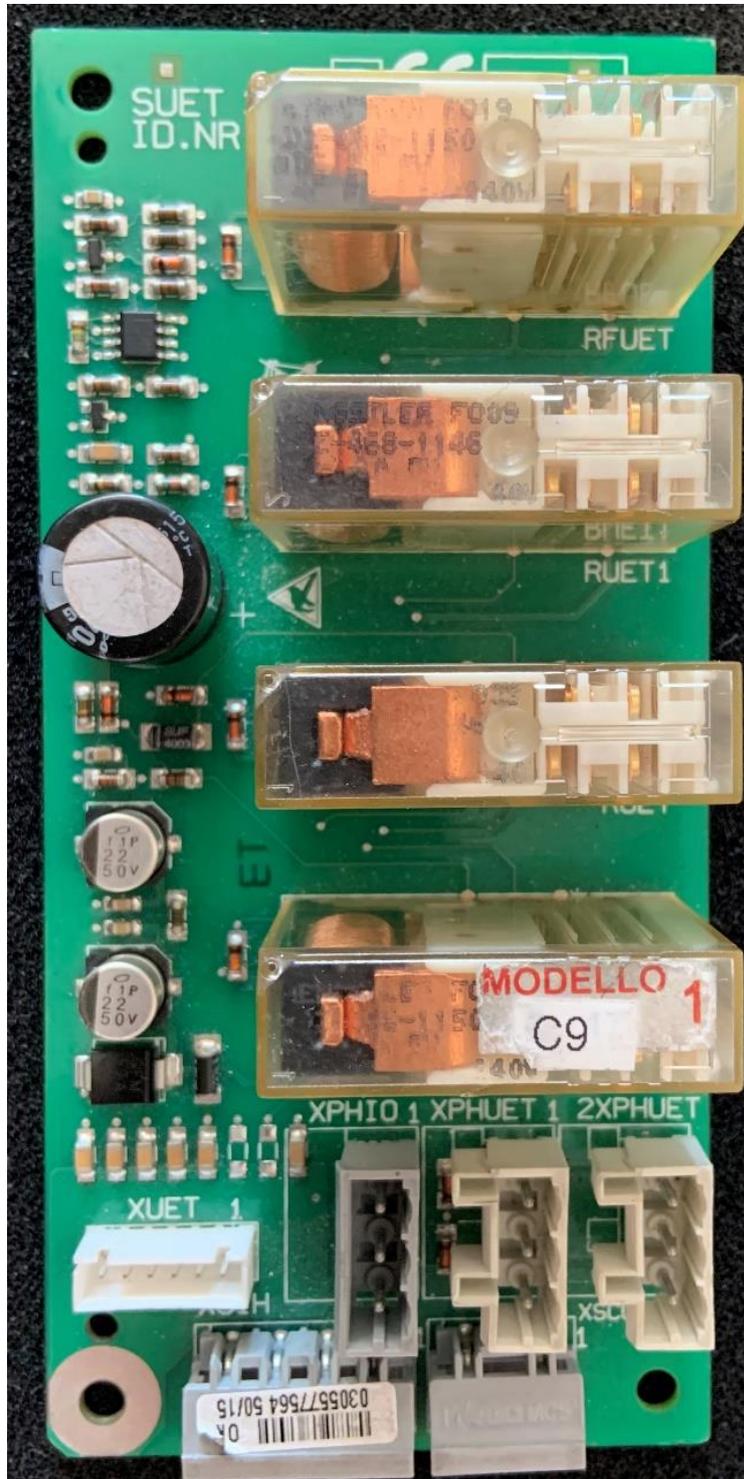
**P.J. Schaareman**  
Product Specialist Certification  
Liftinstituut B.V.

Certification decision by:



**Annexes**

**Annex 1 General overview of Printed Circuit Board SUET 3.Q**



**Annex 2. Documents of the Technical File which were subject of the examination from rev.5 and on**

Title	Document number	Date
EU-Declaration of conformity SUET3	591811 SUET 3.pdf	02-03-2020
Test specifications	42_106_535j2.pdf	19-05-2020
Technical specifications	42_106_535q3.pdf	19-05-2020
Multilevel BOM Explosion report	591811_6700_2_20210518.pdf (i.e. KA 212660 of Oct 2015)	19-05-2020
Electrical diagram	S42106535_01.pdf	19-05-2020
SUETS 3.Q board 1:1 gerber drawings	SUET3_GERBER.pdf	19-05-2020
Assembly drawing SUET3.QE	Z42106535_05.pdf	19-05-2020
Digital data information for SUET3.Q PCB	42_106_536j3_board.pdf	19-05-2020
Blank board mechanical drawing	Z42106536_04.pdf	19-05-2020
Information PCB layers, gerbers	x42106536_03.zip	19-05-2020

**Annex 3. Reviewed deviations from the standards**

No deviations from the standards.

**Annex 4 Revision of the certificate and its report**

Rev.:	Date	Summary of revision
-	27-11-2003	Original
1	18-01-2007	No safety issues, some types of components has been changed
2	11-03-2008	No safety issues, type of connectors X5 and X6 changed
3	29-05-2015	Small silk screen change, inclusion of SUET3.Q in UCMP detection functionality and application of EN 81-20/50.
4	22-09-2015	Addition of Sanmina-SCI Systems Ltd. as manufacturer
5	29-05-2020	5-yearly re-assessment of safety component