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Industrie Service

EC type-examination certificate

Certificate no.:	ESD 058-2008-CHI
Notified body:	TÜV SÜD Industrie Service GmbH Westendstraße 199 D-80686 München
Applicant/ Certificate holder:	G-Technologies Co., Ltd. Chaqiao Industrial District, Shiqi, Zhongshan City, 528404, Guangdong Province, P. R. China
Date of submission:	June 2007
Manufacturer:	G-Technologies Co., Ltd. Chaqiao Industrial District, Shiqi, Zhongshan City, 528404, Guangdong Province, P. R. China
Product, type:	By-pass safety circuit with electronic components as control of leveling and re-leveling with doors open for passenger/goods elevators, type SRU module.
Testing laboratory:	TÜV SÜD Industrie Service GmbH Westendstraße 199 D-80686 München
Date and number of test report:	30.01.2008 ESD 058-2008-CHI
EC-directive:	95 / 16 / EC Annex IV
Statement:	The safety component confirms to the directive's safety requirements if the scope of application and the conditions stated in the Annex to this EC type-examination certificate are fulfilled.
Place and date of issue:	Munich, 2008-02-18

Certification Body for lifts and safety components
EC-Identification Number: 0036

P. Tkal

Authorized Representative: Peter Tkalec

TÜV SÜD Industrie Service GmbH 00 36 Benannte Stelle

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Annex to the EC type-examination certificate no. ESD 058-2008-CHI

1. Scope of application/Description

1.1 The electrical safety component ESD 058-2008-CHI is a safety relay unit, type SRU module, and consists of a printed circuit board (PCB) which is fitted into a plastic housing.

1.2 The safety circuit by-passes the electrical safety switches at the car-and landing doors of the lift, as soon as the car enters the landing door zone. The car- and landing doors can pre-open in this door zone. Additionally, this safety module by-passes the door safety switches for leveling *upwards* or *downwards* with the car-and landing doors being open, if it is required at the leveling stop. The monitoring circuit transmits the switching status at different positions of the safety chain to the data unit without any reaction by means of potential isolation through the optocoupler.

1.3 The safety circuit on the p.c. board includes two sensors A and B to recognize the door zone of the leveling door. The selected sensors A and B must comply with the conditions stated in the standard EN81-1/2:1998 + AC 1999.

1.4 The safety module SRU is not protected against explosion, water or accidental contact. If necessary, it should be provided and tested with the required degree of protection.

1.5 The surrounding temperature may be between -25° C and +65° C.

1.6 The EMC-directive 89/336/EC and the respective standards EN 12015 and EN 12016 are fulfilled.

1.7 Power supply: 24 V DC + 10% / - 15% (terminals 24V and terminal 0V)
Main output: max. 230V AC / 4 A (terminals S1 and S2)

2. Conditions

2.1 The safety component SRU has only to be used within the controller type SEC 8800, certificate no. CON 003-2008-CHI.

2.2 This certificate ESD 058-2008-CHI is only valid to the applicant and the manufacturer as stated in the certificate. The transmission to another company can only be done by the certification body.

2.3 Each SRU safety module must be accompanied by the GTech – Safety Relay Unit, Operating Instructions (4 Pages) stamped with "TUV SUD 0036" dated "18. Feb. 2008" and carry a distinct indication of the Applicant / manufacturer and the type identification no. ESD 058-2008-CHI, so that the identity of the test module can be checked.

2.4 The applicant of this certificate has to survey the manufactured products which are provided with the approval mark for compliance with the test specification. Particularly he has to carry out the regular proper checks, as stated in the specification or required by the testing laboratory.

2.5 The EC type-examination certificate ESD 058-2008-CHI may only be used in connection with the pertinent Annex and the GTech – Safety Relay Unit, Operating Instructions (4 Pages) stamped with "TÜV SÜD 0036" dated "18. Feb. 2008".

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Test Report
No. ESD 058-2008-CHI

Applicant:	G-Technologies Co., Ltd. Chaqiao Industrial District, Shiqi, Zhongshan City, 528404, Guangdong Province, P. R. China
Manufacturer:	G-Technologies Co., Ltd. Chaqiao Industrial District, Shiqi, Zhongshan City, 528404, Guangdong Province, P. R. China
Testing laboratory:	TÜV SÜD Industrie Service GmbH Westendstraße 199 D-80686 München
Date of submission:	June 2007
Product, type:	By-pass safety circuit with electrical components as control of leveling and re-leveling the car with doors open for passenger/goods elevators, type SRU module.
Testing order:	EC-type examination to the specifications
Specifications:	- Directive 95/16/EC of 29th of June 1995, Annex V.B - EN 81-1: 1998 + AC: 1999 - Annex F6 of standard EN 81-1
Kind of examinations:	- Examination on correspondence with the specifications - Practical tests - Verification of documentation
Place and date of examination:	Zhongshan, 30.01 2008

Date: 30.01.2008

Our reference:
IS-PF-China/bha

Document:
80130_TR_ESD 058-2008-CHI doc

This document consists of
3 Pages
Page 1 of 3

The test results refer exclusively to the units under test.

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1. Scope of application/Description

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1.7 Power supply: 24 V DC + 10% / - 15% (terminals 24V and terminal 0V)
Main output: max. 230V AC / 4 A (terminals S1 and S2)

2. Tests and examinations

All tests and examination requested in the specifications have been carried out in the laboratory of TÜV Product Service Ltd. Guangzhou Branch TÜV SÜD Group. The results are documented in the Technical Report No. 64.110.07.0792.01, Rev. 01 dated November 26, 2007.

3. Result

It can be confirmed that the electronic safety component type SRU module as part of the controller SEC 8800 meets the requests of the specifications if the following conditions (item 4) are fulfilled.

4. Conditions

4.1 The safety component SRU has only to be used within the controller type SEC 8800, certificate no. CON 003-2008-CHI.

4.2 This certificate ESD 058-2008-CHI is only valid to the applicant and the manufacturer as stated in the certificate. The transmission to another company can only be done by the certification body.

4.3 Each SRU safety module must be accompanied by the GTtech – Safety Relay Unit, Operating Instructions (4 Pages) stamped with "TUV SUD 0036" dated "18. Feb. 2008" and carry a distinct indication of the Applicant / manufacturer and the type identification no. ESD 058-2008-CHI, so that the identity of the test module can be checked.

4.4 The applicant of this certificate has to survey the manufactured products which are provided with the approval mark for compliance with the test specification. Particularly he has to carry out the regular proper checks, as stated in the specification or required by the testing laboratory.

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4.5 The EC type-examination certificate ESD 058-2008-CHI may only be used in connection with the pertinent Annex and the Gtech – Safety Relay Unit, Operation Instructions (4 pages) stamped with "TÜV SÜD 0036" dated "18. Feb. 2008".

5. Documents on which the test report is based

- GTech – Safety Relay Unit SRU, Operating Instructions (4 pages) stamped with "TÜV SÜD 0036" dated "18. Feb. 2008"
- Technical Report No. 64.110.07.0792.01, Rev. 01 of November 26, 2007 issued by TÜV Product Service Ltd. Guangzhou Branch TÜV SÜD Group
- GTech - Electrical diagram SEC 8800 dated 28./30. January 2008 stamped with "TÜV SÜD" dated "10. Feb. 2008"

Expert engineer

Vinod Bhatnagar

TÜV SÜD Industrie Service GmbH 00 36 Benannte Stelle

German Technologies

Safety Relay Unit SRU
Operating Instructions

1. Application

The safety relay unit SRU can be used for the following lift applications according to EN-81:
1. applications, where the lift should be moved with open car and shaft doors (advanced door opening, re-levelling with open doors).
2. replacement of mechanical constrained switches

2. Technical data:

Dimensions (LxWxH) mm :	100 x 22 x 114
Housing protection :	IP50, Terminals: IP 20
Ambient temperature:	-25 C to + 65 * C
Fixing:	on mounting rail according to EN 50022 and EN 50035
Cross sections for connections:	max. 4 mm²
Power supply:	24 V DC + 10% / - 15% (terminals 24V and terminal 0V)
Main output:	max. 230V AC / 4 A (terminals S1 and S2)
Control output:	24 V DC low active, max. 1 A (terminal FB)
Rated values:	correspond to EN81-1, annex F1.2: 230V AC, 2A
EMC:	According to product family norm EN 12015 and EN 12016.

The safety relay unit SRU is not intended for use in explosion-protected areas.

3. Construction

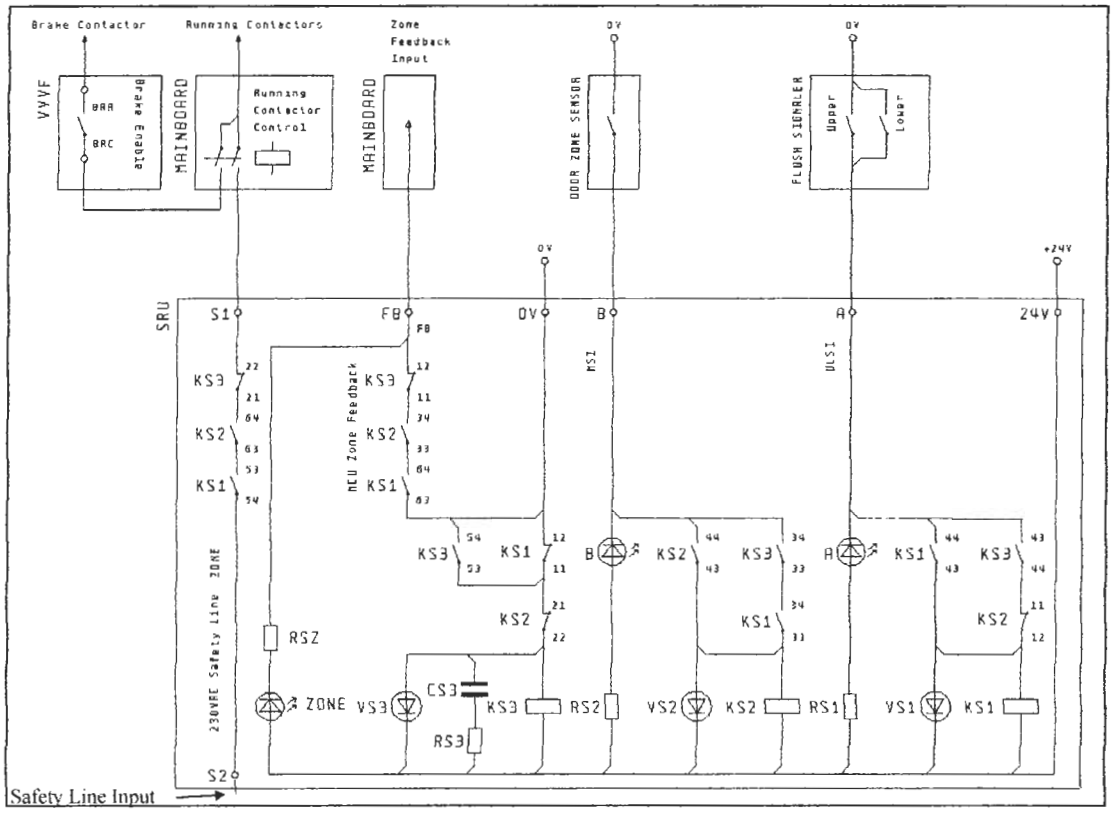
The safety relay unit SRU consists of a printed circuit board (PCB) which is fitted into a plastic housing. All components on the PCB (except the terminals) are covered by this housing.

Housing:	ME 22,5 UTG GN (ME 22,5 UTL G) + ME 22,5 OT-MSTBO SET
Manufacturer:	Phoenix Contact GmbH & Co. KG
Relays:	safety relays with forcibly guided contacts according to EN 50205
Manufacturer:	E. Dold & Söhne KG
Type:	OA 5622.54/3673W1/61
or	
Manufacturer:	Schrack Technik
Type:	SR6B4024
or	
	Equivalent Relays type
Type:	
Printed circuit board:	
Basic material :	Epoxy resin vitrified tissue.
Type:	249-2-5-FVO-EC-EP-GC-Cu according to DIN-IEC 249
Minimum creep distances:	according to DIN VDE 01 10, part 1 , table 4,
Pollution degree:	3
Isolating material:	III a/b
Distance between terminals S1/S2:	4 mm for 250 V
For the other circuits:	2 mm for 63 V

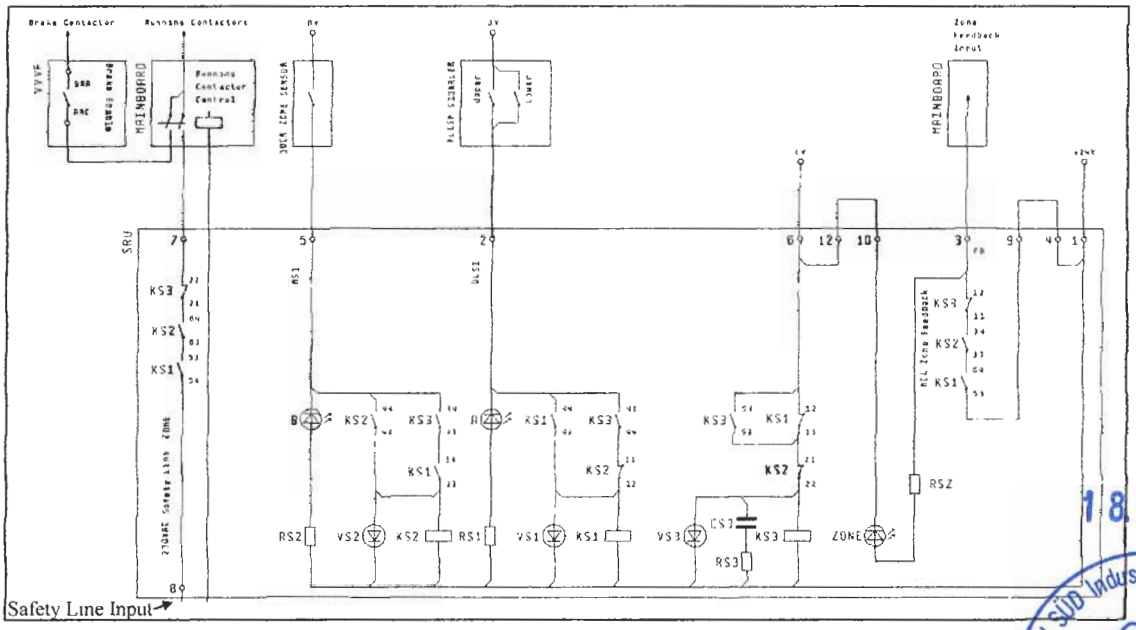
German Technologies

4. Schematics

0V Zone Feedback version:



24V Zone Feedback version:



Both versions can be realized with the same printed circuit board

5. Functional description

The schematic for the safety relay unit SRU is shown below.
The safety relay unit SRU consists of 2 independent channels. This 2 channels must be driven from 2 independent sensors, connected to terminal A and B
The safety relay unit SRU will only set the main output (connection between terminals S1 and S2) if both independent sensors are running synchronous.
When the power is switched on to the safety relay unit SRU the relay KS3 will go on first. The main output is not set (no connection between terminals S1 and S2).
If input signals from the sensors applied to channel A and B (terminals A and B), first relay KS1 switches on and closes the connection for KS2. So also KS2 goes on. By this KS3 goes off and the main output is set (connection between terminals S1 and S2).
This condition is also monitored on the feedback output at terminal FB.
If the 2 sensors are running unequally the main output circuit remains open (no connection between terminals S1 ands S2) and the feedback output (terminal FB) also remains off.
If one of the sensor signals goes off the relevant relay also goes off and at the same time the main output circuit is opened. This relay can only switch on again if the original condition of the safety relay unit SRU is reached (KS1 and KS2 off, KS3 on).
If the safety relay unit SRU is used for bypassing the door contacts for advanced door opening or re-levelling with open doors the 2 input channels are switched from shaft sensors signals. The shaft sensor signal for channel A of the safety relay unit SRU can be computed by the lift controller from the input of a digital position measurement system (e.g. an incremental encoder) and switched by an output of the lift controller. The other channel of the safety relay unit SRU is connected directly to a real shaft sensor, usually a magnetic switch.
The lift controller switches the output for channel A of the safety relay unit SRU by the following conditions:
- Car is inside door zone
- Lift speed is below the speed for advanced door opening or re-levelling

The feedback output of the safety relay unit SRU is connected to a lift controller input

6. Error conditions

6.1. Channel A (lift controller output) is permanent on:
Relay KS1 always stays on. KS3 can't go on again and so also KS2 can't go on again. The main output is not set (no connection between terminals S1 and S2).
6.2 Channel B (magnetic switch) is permanent on:
Relay KS2 always stays on. KS3 will always stay off and KS1 can't go on. The main output is not set (no connection between terminals S1 and S2).
6.3. KS1 stuck
Relay KS3 cant go on again, so relay KS2 can't go on again. The main output is not set (no connection between terminals S1 and S2).
6.4. KS2 stuck
Relay KS3 cant go on again, so relay KS1 can't go on again. The main output is not set (no connection between terminals S1 and S2).
6.5. KS3 stuck
The main output is not set (no connection between terminals S1 and S2).
6.6. KS1 or KS2 not working (can't go on)
The main output is not set (no connection between terminals S1 and S2).
6.7. KS3 not working (can't go on)
KS1 and KS2 can't go on. The main output is not set (no connection between terminals S1 and S2).

In no case a failure of one of the sensors or of the safety relay unit SRU can produce a dangerous error, because the main output circuit is open (no connection between terminals S1and S2).

Additionally by applications for advanced door opening and re-levelling with open doors the lift controller monitors the feedback output FB of the safety relay unit SRU. If the feedback output is not on if the lift is inside the door zone and the speed is below the limit, the lift controller will set an error message and will stop operation until a reset is executed. The same will happen if the feedback output will not go off if the speed is above the limit or the lift is outside the door zone.

7. Test

1. Permanent signal from one of the sensor or stuck relay KS1 or KS2
Connect directly a 0V signal to channel A or channel B (connection between terminal 0V and one of the channel input terminals A or B)
The connection to the channel inputs should be done in the moment when the relay KS1 (for channel A) or KS2 (for channel B) is momentarily on (check the state of the LED HA for channel A or HB for channel B). At the latest after one switching sequence has been completed, the output of the safety line (terminals S1 and S2) must remain open and the lift controller will set an error message (when used as safety device for advanced door opening or re-levelling with open doors).
2. Relays KS1 or KS2 are not working:
Disconnect the cable from one of the channel inputs (terminal A or B)
Disconnect the cables from channel A or B in a moment when they are really switched off (check the state of the LED HA for channel A or HB for channel B). At the latest after one switching sequence has been completed, the output of the safety line (terminals S1 and S2) must remain open and the lift controller will set an error message (when used as safety device for advanced door opening or re-levelling with open doors).

The speed depending of channel A (lift controller output when used as safety device for advanced door opening or re-levelling with open doors) can be tested by setting the speed limit for advanced door opening or re-levelling to 0 (with the keypad of the lift controller, refer to lift controller manual). If the speed is 0 the lift controller will never switch on the channel A of the safety relay unit SRU.

8. Installation notes

For the improvement of safety, the connections to all terminals must be installed in such a way that no short circuit or short to earth can occur.
The installation position should be chosen so that the print "SRU" can be read from left to right on the housing of the safety relay unit SRU.

9. Maintenance

No maintenance is necessary. If the safety relay unit SRU is defective, the system is stopped. Qualified personal must replace the unit then.