H 4135

H 4135: Relay in an electronic housing

safety-related, for circuits up to SIL 3 according to IEC 61508

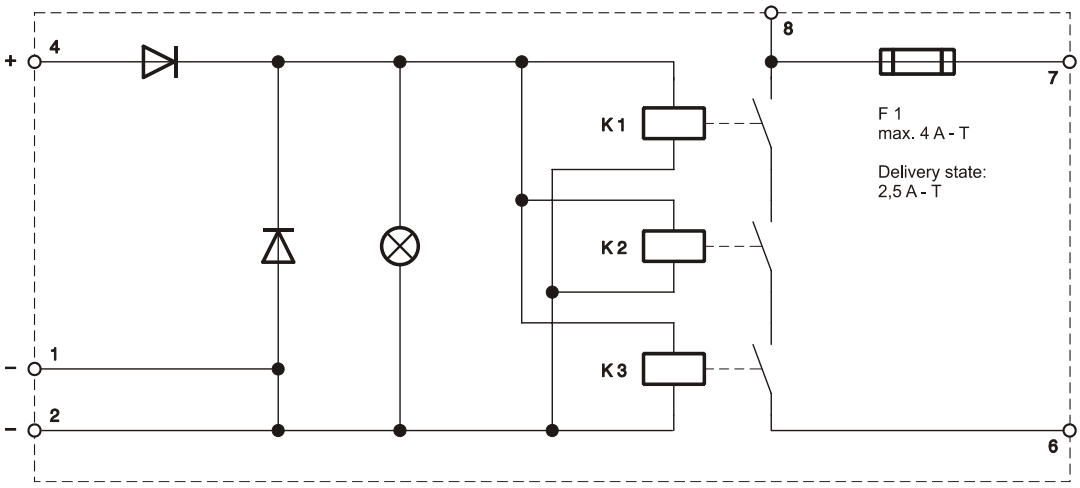

Figure 1: Block diagram

The module is tested according to
- IEC 61508, Part 1 - 7:2000
- IEC 61511, Part 1 - 3:2004
- ANSI/ISA S84.00.01:2004
- EN 50156-1:2004, DIN VDE 0116:1989
- EN 60664-1:2003
- EN 50178:1997 VDE 0160
- EN 61131-2:2004
- EN 298:2003
- NFPA 85:2007, NFPA 86:2007
- EN 61000-6-2:2000, EN 61000-6-4:2002
- IEC 61326-3-1:2006, IEC 61326-3-2:2006

The relay is suitable for the switching of safety-related circuits. Thus the relay can be used for safety shutdowns, e.g. to cut off the entire fuel supply for combustion plants.

The module is equipped with relays in diversity.

Note	The connection terminal 8 may be used only for monitoring the fuse F1, but not to supply a voltage for the contact!

Input	24 VDC / -15...+20 %, ≤ 40 mA
Output	floating NO contact Relay data: cf. reverse
Switching time	approx. 8 ms
Reset time	approx. 6 ms
Ambient conditions	-25...+60 °C
Degree of protection	IP 20 according to EN 60529 (VDE 0470 part 1)

According to DIN EN 50178 the relays used have **safe isolation** between the output contact and the input contact. The clearance in air and the creepage distance are dimensioned for overvoltage class III up to 300 V.

Relay data

Contact material	AgNi, hard gold-plated
Switching voltage	≥ 5 V, ≤ 250 VAC / ≤ 127 VDC
Switching current	≥ 10 mA, ≤ 4 A
Switching capacity AC	≤ 500 VA, cos φ > 0.5 ≤ 830 VA, cos φ > 0.9
Switching capacity DC	up to 30 V: ≤ 120 W up to 70 V: ≤ 50 W up to 127 V: ≤ 25 W
Bounce time	approx. 1 ms
Life	
mechanical	≥ 30 x 10^6 cycles
electrical	≥ 2.5 x 10^5 cycles (with full resistive load and ≤ 0.1 cycles per second)

Proof-Test Interval

- For SIL 3 applications (according to IEC 61508) functional test has to be made after five years at the latest.
- For SIL 2 applications (according to IEC 61508) functional test has to be made after 20 years at the latest.

Mechanical design and dimensions

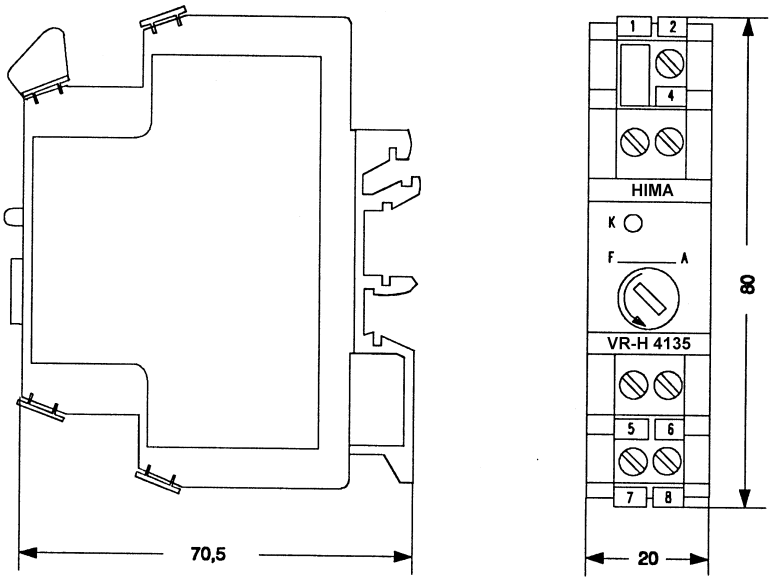

Figure 2: Mechanical design and dimensions

Cross section of connecting wires	≤ 2.5 mm^2 (AWG 14)
Mounting	on DIN rail 35 mm or on C profile
Mounting position	horizontal or vertical
Assembling distance	not required

TÜVRheinland®

ZERTIFIKAT
CERTIFICATE

Nr./No. 968/EZ 165.01/07

Prüfgegenstand **Product tested**	Safety Related Electronic System	**Hersteller** **Manufacturer**	HIMA Paul Hildebrandt GmbH + Co. KG Albert-Bassermann-Straße 28 68782 Brühl bei Mannheim
Typbezeichnung **Type designation**	Relay-modules H 4116 (SIL 2) H 4134 (SIL 2) H 4135 (SIL 3) H 4135A (SIL 3) H 4136 (SIL 3)	**Verwendungs-zweck** **Intended application**	Safety Related Electronic Modules for the use in process control, Burner Management (BMS), emergency shut down systems, where the safe state is the de-energized state.
Prüfgrundlagen **Codes and standards forming the basis of testing**	IEC 61508, Part 1 - 7:2000 IEC 61511, Part 1 - 3:2004 ANSI/ISA S84.00.01:2004 EN 50156-1:2004, DIN VDE 0116:1989 EN 60664-1:2003 EN 50178:1997 EN 298:2003 NFPA 85:2007, NFPA 86:2007 EN 61000-6-2:2000, EN 61000-6-4:2002		
Prüfungsergebnis **Test results**	The modules are suitable for safety related applications up to SIL 2 or SIL 3.		
Besondere Bedingungen **Specific requirements**	For the use of the Relay-Modules, the Data Sheets and the actual revision of the product documentation released by HIMA have to be considered.		

TÜVRheinland® Functional Safety Type Approved FS

Der Prüfbericht-Nr.: 968/EZ 165.01/07 vom 15.06.2007 ist Bestandteil dieses Zertifikates.
Der Inhaber eines für den Prüfgegenstand gültigen Genehmigungs-Ausweises ist berechtigt, die mit dem Prüfgegenstand übereinstimmenden Erzeugnisse mit dem abgebildeten Prüfzeichen zu versehen.

The test report-no. 968/EZ 165.01/07 dated 2007-06-15 is an integral part of this certificate.
The holder of a valid licence certificate for the product tested is authorized to affix the test mark shown opposite to products, which are identical with the product tested.

TÜV Rheinland Industrie Service GmbH
Geschäftsfeld ASI
Automation, Software und Informationstechnologie
Am Grauen Stein, 51105 Köln
Postfach 91 09 51, 51101 Köln

H. Gall

15.06.2007
Datum/Date

Firmenstempel/Company Seal

Unterschrift/Signature