



## H 4116: Relay in Electronic Housing

safety-related, for circuits up to SIL 2 according to IEC 61508

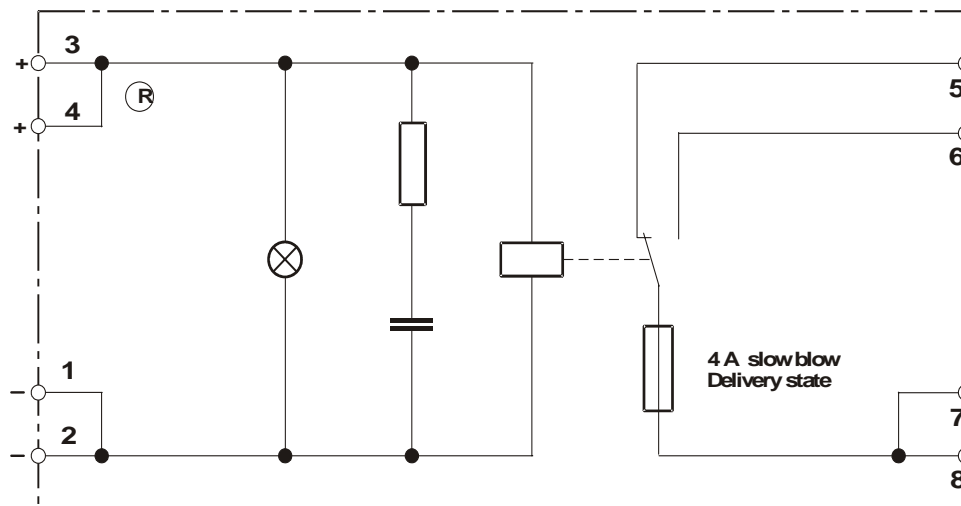


Figure 1: Block diagram

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

Due to its low current consumption the relay can be controlled directly from the outputs of safety-related modules with an output load of at least 20 F. The output signal of the module then may not be loaded additionally. An LED indicates the relay coil energized.

Input voltage	24 VDC / -15...+20 %
Current consumption	15 mA
Switching time	approx. 7 ms
Reset time	approx. 5 ms
Output	1 floating changeover contact, sealed Relay data: cf. reverse
Ambient conditions	-25...+50 °C
Degree of protection	IP 20 according to IEC/EN 60529 (VDE 0470 part 1)

According to DIN EN 50178, the relay has a **safe isolation** between the output contact and the input contact. The clearance in air and the creepage distance are dimensioned for over-voltage class III up to 300 V.

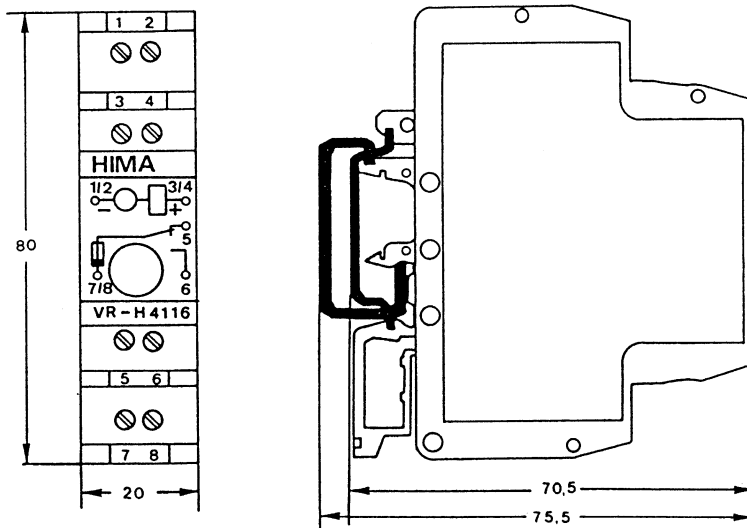
**Relay data**

Contact material	AgNi, hard gold-plated
Switching voltage	≤ 250 VAC/DC, ≥ 1 mV
Switching current	≤ 4 A, ≥ 1 mA (also for safety-related use)
Inrush peak current	≤ 12 A for ≤ 0.5 s
Fusing	≤ 4 A slow blow (delivery state)
Switching capacity AC	≤ 1000 VA, cos φ > 0.5
Switching capacity DC	non-inductive load, up to 30 V: ≤ 120 W 70 V: ≤ 40 W 125 V: ≤ 25 W 250 V: ≤ 40 W
Bounce time	approx. 1 ms
Switching frequency	≤ 10 cycles per second
Life	
mechanical	> 10 <sup>7</sup> cycles
electrical	> 2.5 x 10 <sup>5</sup> cycles (at full resistive load and ≤ 0.1 cycles per second)

**Proof Test Interval**

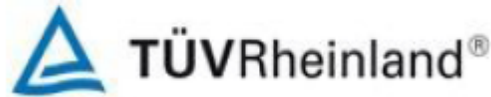
For SIL 2 applications (according to IEC 61508) a functional test has to be made after five years at the latest.

**Mechanical construction and dimensions**



**Figure 2: Mechanical construction and dimensions**

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



# ZERTIFIKAT CERTIFICATE

Nr./No. 968/EZ 165.01/07

<b>Prüfgegenstand</b> Product tested	Safety Related Electronic System	<b>Hersteller</b> Manufacturer	HIMA Paul Hildebrandt GmbH + Co. KG Albert-Bassemann-Straße 28 68782 Brühl bei Mannheim
<b>Typbezeichnung</b> Type designation	Relay-modules H 4116 (SIL 2) H 4134 (SIL 2) H 4135 (SIL 3) H 4135A (SIL 3) H 4136 (SIL 3)	<b>Verwendungszweck</b> 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.
<b>Prüfgrundlagen</b> 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		
<b>Prüfungsergebnis</b> Test results	The modules are suitable for safety related applications up to SIL 2 or SIL 3.		
<b>Besondere Bedingungen</b> 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.		



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**  
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15.06.2007

Datum/Date

Firmenstempel/Company Seal

Unterschrift/Signature

