Power Relay CHI34

1 Features

- **For inrush current up to 800 A thanks to tungsten pre-contact**
- **For electronic control gears or switching power supplies**
- **Reduction of the inrush current and less wear thanks to switching while zero-crossing**
- **Wide range control input 24 – 240 V AC/DC**
- **Low noise during operation**
- **Including auxiliary contact and manual override**

2 General description

The CHI34 is a power relay for all applications effecting high inrush currents up to 800 A such as electronic control gears of energy saving lamps, power supplies of the latest LED lights and switching supplies of industrial components. These loads show an inrush current up to 250 times of their nominal current.
The CHI34 is equipped with three low noise operating N.O contact with a nominal current up to 16 A which are switching while phase zero-crossing. In addition, the CHI34 provides a semiconductor auxiliary contact and a manual override (ON-Auto-OFF) and complies with the applicable DIN standards 43880 with installation dimension of 35 mm (2 module width).

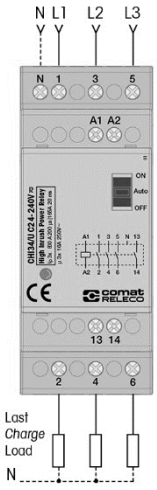
Technical specification is subject to change without previous notice

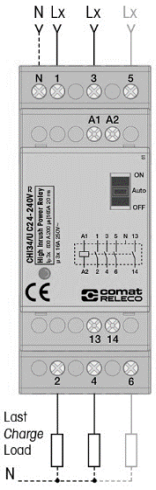
3 Order designation

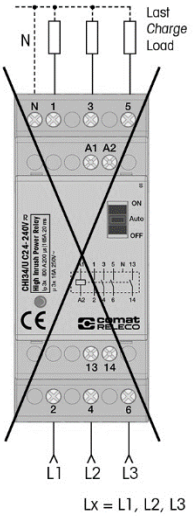
Power Relay	CHI34/UC24-240V

4 Connection diagram

A1 / A2	Control Input
1-2 / 3-4 / 5-6[1]	Power Contacts
N[1]	Neutral connection
13 / 14	Auxiliary Contact (Semiconductor)







Lx = L1, L2, L3

[1] The supply of the device is made from the power circuit via connections 1 and N.

5 Specifications

5.1 General Data

5.1.1 Mechanical Data

Outside dimension	System DIN, W x H x D: 17.5 x 75 x 64 mm
Connector	Screw terminal 2.5 mm^2
Min. screw tightening torque	0.5 Nm
Max. screw tightening torque	0.6 Nm
Protection	IP20
Case material	Lexan EXL9330
Weight	125 g
Fastening	TS35 DIN/EN 60715

5.1.2 Ambient conditions

Storage temperature	-40 °C ... +85 °C
Operating temperature	-25 °C ... +60 °C
Relative humidity	10 % ... + 95 % (not condensing)

5.1.3 Life cycle

Life cycle	> 100 000 h (at 25 °C)

(Relay contacts: see Point 5.4 Output circuit)

5.2 Electrical Data

5.2.1 Supply U_B (1 – N)

Nominal operating voltage (AC/DC)	110 ... 240 V
Operating voltage (AC/DC)	80 ... 250 V
Frequency range	47 ... 63 Hz
Current consumption	≤ 15 mA
Inrush current	n/a
Power consumption	3.45 VA

5.2.2 Control Input (A1 – A2)

Nominal operating voltage (AC/DC)	24 ... 240 V
Operating voltage (AC/DC)	16.8 ... 250 V
Frequency range	47 ... 63 Hz
Current consumption	≤ 150 µA
Inrush current	n/a
Power consumption	AC: ≤ 30 mVA /DC: ≤ 30 mW

5.3 Time response

Start-up delay max.	500 ms
Power supply hold on time.	20 ms

5.4 Output circuit main contacts

Number of contacts		3
Output		N.O.
Switching point		At zero-crossing of the respective phase
Commutation at zero crossing[2]		Yes
Nominal current at 40 °C		16 A
Nominal current at 60 °C		13 A
Inrush current		165 A / 20 ms 800 A / 200 us
Nominal voltage		250 V
Contact material		W / $AgSnO_2$
Recommended minimal load		100 mA / 12 V
Life time of contacts		5 x 10^3 (16 A, 250 V AC-1)
Mechanical life time		5 x 10^6
Voltage stability	Excitation – Contact	2.5 kV (Basic Isolation, RMS, 1 min.)
Voltage stability	Contact – Contact	2.5 kV (Basic Isolation, RMS, 1 min.)
Pollution Degree		II

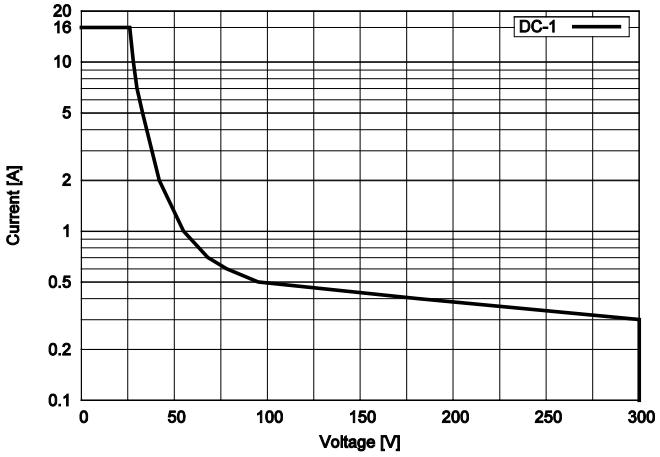
5.5 Output circuit auxiliary contact

Number of contacts		1
Output		N.O.
Switching point		Synchronized with last switching main contact
Nominal current at 25 °C		90 mA
Nominal current at 60 °C		60 mA
Inrush current		1 A / 100 µs
Nominal voltage AC/DC		24 V
Contact material		Semiconductor
Recommended minimal load		1 mA / 5 V
Leakage current		≤ 10 µA
Voltage drop		≤ 1.5 V
I^2t		n/a
Life time of contact		∞
Mechanical life time		∞
Voltage stability	Excitation – Contact	2.5 kV (Reinforced Isolation, RMS, 1 min.)
Voltage stability	Excitation – Contact	2.5 kV (Reinforced Isolation, RMS, 1 min.)
Pollution Degree		II

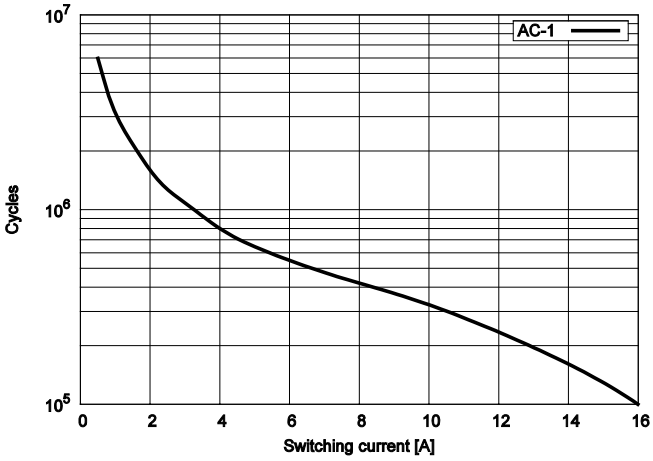
[2] The main contacts in use are switched only.

5.6 Typical performance characteristics

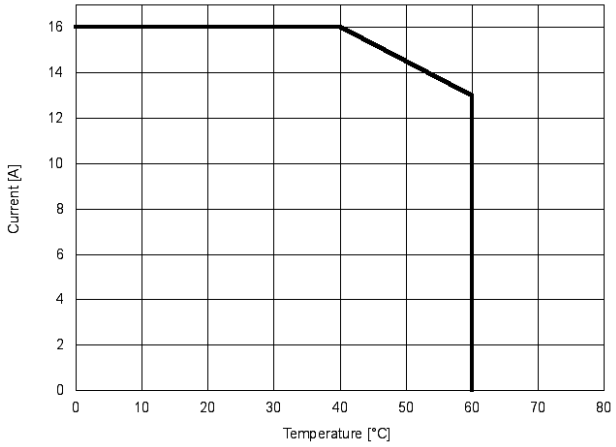
CHI34 - Breaking capacity



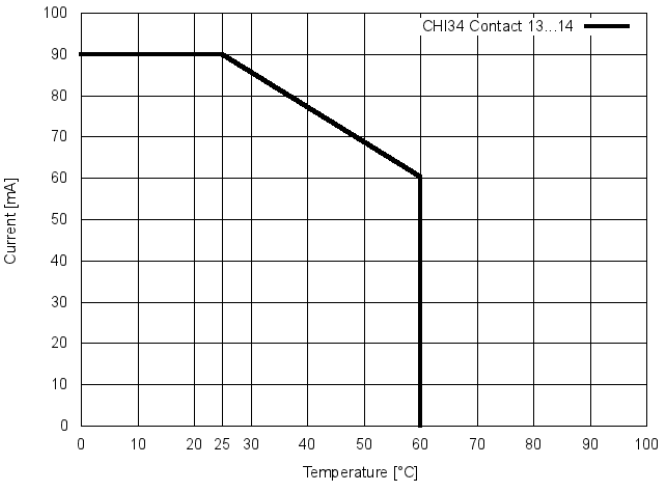
CHI34 - Electrical endurance main contacts



CHI34 - Output current main contacts



CHI34 - Output current auxiliary contact



5.6.1 Lamp loads

Maximum number of lamps per main contact at 230V. Utilization category AC-5a.
The following information applies to 100 000 cycles.

Last	Power [W]	Current [I]	Number of Lamps [n]
Compact fluorescent lamps with internal ballasts	7	0.08	64
	9	0.10	50
	11	0.12	41
	13	0.14	35
	18	0.20	25
	26	0.27	17
Fluorescent lamps with external electronic ballasts	18	0.09	39
	2x18	0.17	21
	21	0.11	32
	2x21	0.22	16
	28	0.14	25
	2x28	0.27	13
	35	0.17	21
	2x35	0.34	10
	54	0.26	13
	2x54	0.52	7
	58	0.25	14
	2x58	0.48	7
	80	0.40	9
	2x80	0.76	5
LED-Lamps / Power supplies for LED n: Number of lamps or power supplies I_n: Current consumption per lamp or power supply	-	-	$n = 4\ A / I_n$

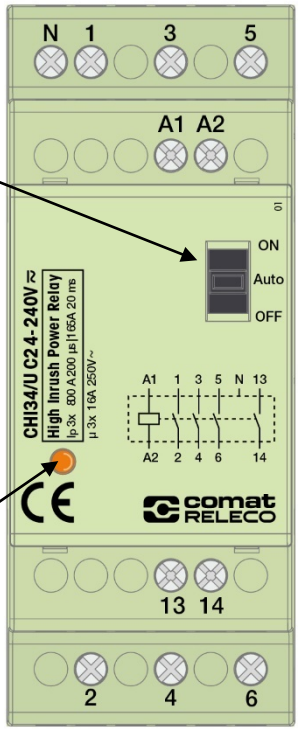
6 Application hints

Manual override
ON:
The connected main contacts and the auxiliary contact of the device are permanently switched on. The main contacts are switching while zero-crossing activated by the manual override. Switching commands via A1 / A2 are not considered.

AUTO:
The connected main contacts and the auxiliary contact are switched by applying the control voltage to A1 / A2. Switching of the main contacts while zero-crossing.

OFF:
All contacts are switched off. Commands via A1 / A2 are not considered.

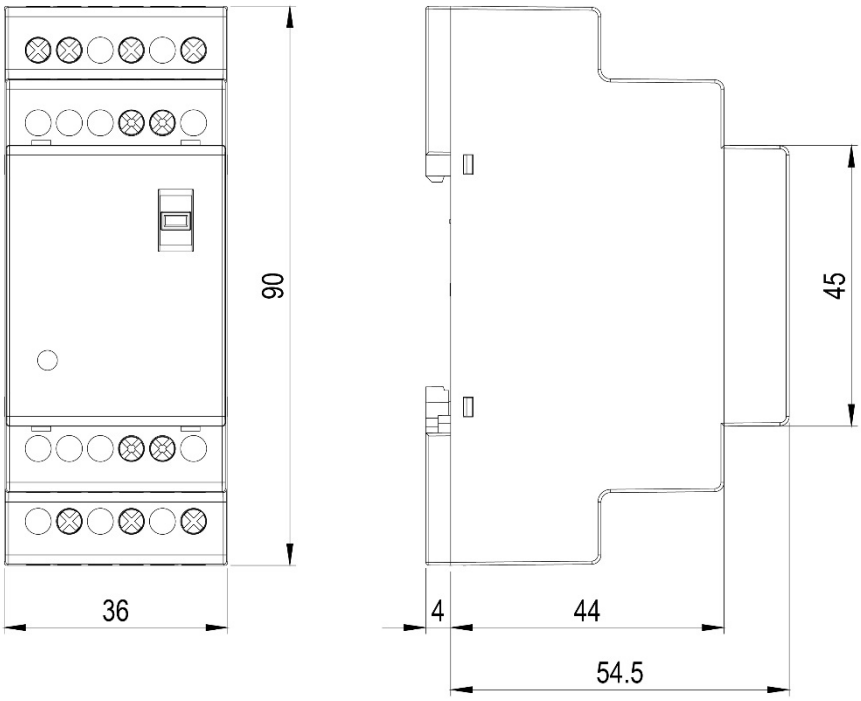
Switching state display
Shows the switching state and the position of the manual override.



6.1 Switching state display

LED		A1 / A2	Manual override	Main contacts	Aux. contact
Off	———————	No influence	Off	Off	Off
Off	———————	Off	Auto	Off	Off
Permanently on	———————	On	Auto	On	On
Flashing	— — — —	No influence	On	On	On

7 Dimensions



8 Standards

Interference immunity	EN 61000-6-2:2005
Interference emission	EN 61000-6-3:2007
Conformities, Identification	CE

9 Revision history

Version	Revision date	Responsible	Modifications
55061-001-57-001	27.01.2017	Mi	Edition 1
55061-001-57-002	13.02.2017	Mi	Chapter 4: new connection diagram
55061-001-57-003	06.03.2017	Mi	Literal error correction