

# Undercurrent relay CSG140

for DC currents





CSG140

### Device features

- Undercurrent relay for DC currents
- External supply voltage
- 4 device variants with adjustable response values: 0.5...5/2...20 mA, 0.5...5 A, 1...10 A, 6...60/50...500 mV
- Adjustable response delay: 0.1...10 s
- Adjustable hysteresis: 2...10%
- Power On LED, Alarm LED
- Alarm relay with two potential-free changeover contacts
- 45 mm enclosure

### Note

In case of new installations refer to CME420

### Approvals



### Product description

The CSG140 series relays are designed to monitor DC currents (DC voltage) for undercurrent. The current is measured directly or by means of a shunt. External supply voltage is required. The response value, response delay and hysteresis are set via potentiometers.

### Typical applications

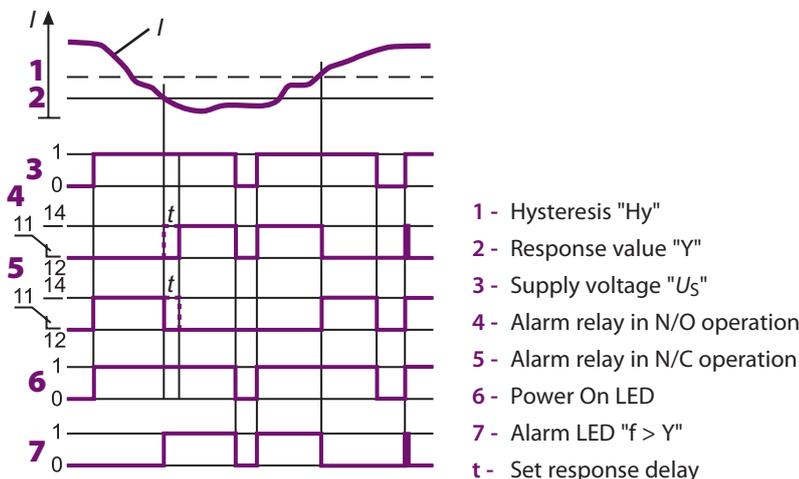
- Monitoring the load and functionality of electric loads
- Power consumption monitoring
- Monitoring of emergency lighting

### Function

The current to be monitored has to be connected to the terminals L1+ or L2+ or L3+. If the current drops below the set response value, the alarm relay switches after the response delay has elapsed and the alarm LED lights up.

When the measured quantity exceeds the set response value plus hysteresis, the relay switches back to its original state after approximately 70 ms.

The operating principle of the alarm relay can be set to N/O or N/C operation.



### Note

False alarms resulting from operational measurement errors can be suppressed by setting a time delay. The set response delay remains effective even in case of complete supply voltage failure.

### Ordering information

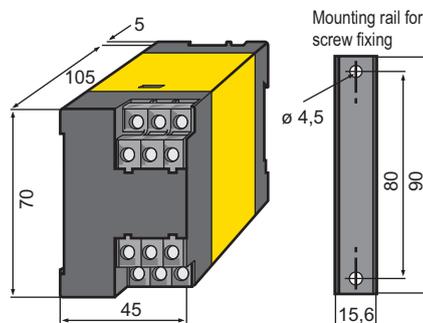
Supply voltage $U_s$	Response value	Type	Art. No.
AC 85...275 V, 50...60 Hz	0.5...5 A	CSG140	B 943 606
	0.5...5 mA/2...20 mA	CSG140	B 943 601
	1...10 A	CSG140	B 943 604
	6...60 mV/50...500 mV	CSG140	B 943 608
DC 9,6...84 V	0.5...5 A	CSG140	B 943 613
	0.5...5 mA/2...20 mA	CSG140	B 943 616
	6...60 mV/50...500 mV	CSG140	B 943 611
DC 77...286 V	0.5...5 A	CSG140	B 943 626
	6...60 mV/50...500 mV	CSG140	B 943 621
	0.5...5 mA/2...20 mA	CSG140	B 943 625

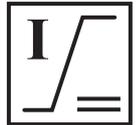
### Accessories

Type designation	Art. No.
Mounting rail for screw mounting	B974728

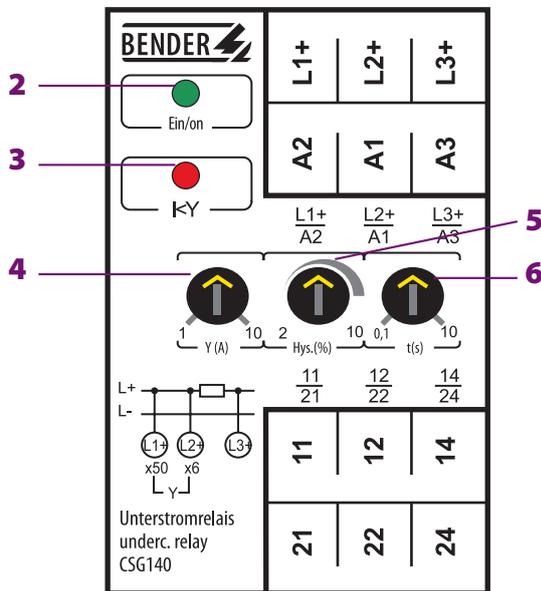
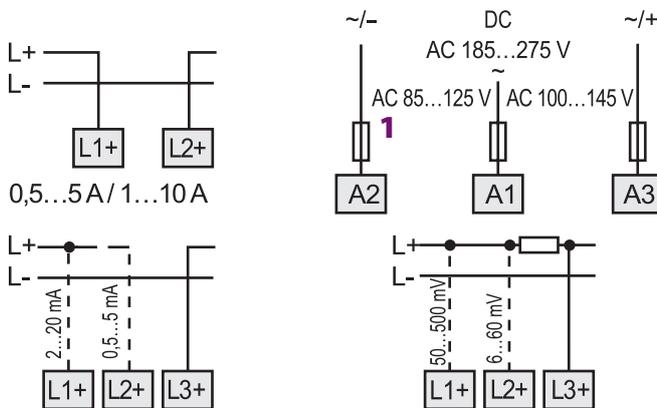
### Dimension diagram X140

Dimensions in mm



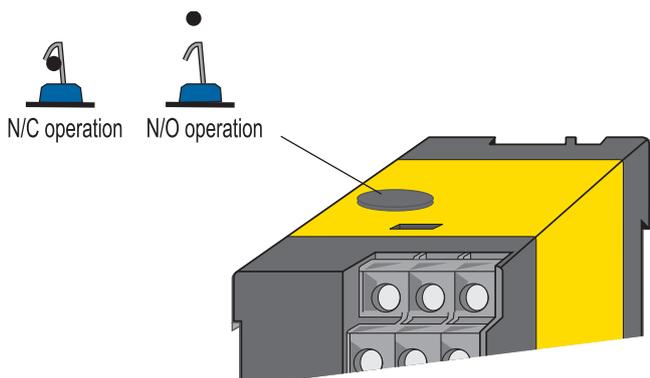


Wiring diagram



- 1 - 6 A fuse
- 2 - Power On LED "ON"
- 3 - Alarm LED
- 4 - Adjustable response value
- 5 - Adjustable hysteresis
- 6 - Adjustable response delay
- 7 - Alarm relay

Setting of the operating principle of the alarm relay



Technical data

Insulation coordination acc. to IEC 60664-1

Rated insulation voltage	DC 300 V
Rated impulse withstand voltage/pollution degree	4 kV/3

Supply voltage

Supply voltage $U_S$	see ordering information
Power consumption	$\leq 3$ VA

Measuring circuit

Response values	DC 0.5...5 A
	DC 0.5...5/2...20 mA
	DC 1...10 A
	DC 6...60/50...500 mV

Overload capability measuring input

Response value	0.5...5 mA	2...20 mA	6...60 mV	50...500 mV	0.5...5 A	1...10 A
Load	12 $\Omega$	3 $\Omega$	1 k $\Omega$	8,2 k $\Omega$	10 m $\Omega$	10 m $\Omega$
Overload capability	0.5 A 1s	0.5 A 1s	30 V 1s	100 V 1s	40 A 1s	40 A 1s
	0.2 A DB	0.2 A DB	6 V DB	50 V DB	12 A DB	12 A DB

Response delay $t$	0.1...10 s (0.1)*
Hysteresis	2...10 % (2%)*
Delay on release	approx. 70 ms
Repitition accuracy	$\pm 1,5$ %
Temperature influence	$< 0.05$ %/°C
Recovery time $t_b$	$\leq 200$ ms

Switching elements

Number of changeover contacts	1 x 2
Operating principle	NC/N/O operation (N/O operation)*
Electrical endurance, number of cycles	12000
Contact class	IIB
Rated contact voltage	AC 250 V/DC 300 V
Making capacity	AC/DC 5 A
Breaking capacity	2 A, AC 230 V, cos phi 0.4 0.2 A, DC 220 V, L/R = 0.04 s

Environment/EMC

EMC immunity	acc. to IEC 61000-6-2
EMC emission	acc. to IEC 61000-6-4
Shock resistance IEC 60068-2-27 (device in operation)	15 g/11 ms
Bumping IEC 60068-2-29 (transport)	40 g/6 ms
Vibration resistance IEC 60068-2-6 (device in operation)	1 g/10...150 Hz
Vibration resistance IEC 60068-2-6 (device not in operation)	2 g/10...150 Hz
Ambient temperature (during operation)	-15...+50 °C
Ambient temperature (during storage)	-20...+70 °C
Climatic class acc. to IEC 60721-3-3	3K5 (except condensation and formation of ice)

Connection

Connection	flat terminals with self-lifting clamp washers
Connection properties	
single wire	2 x (1...1.5) mm <sup>2</sup>
flexible with end ferrule	2 x (0.75...1.5) mm <sup>2</sup>

Other

Operating mode	continuous operation
Mounting	any position
Degree of protection, internal components (IEC 60529)	IP50
Degree of protection, terminals/with terminal covers (IEC 60529)	IP10/IP20
Screw mounting	with mounting rail
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94V-0
Product standard	IEC 60255-6
Operating manual	BP307001
Weight approx.	$\leq 250$ g

( \*) factory setting



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