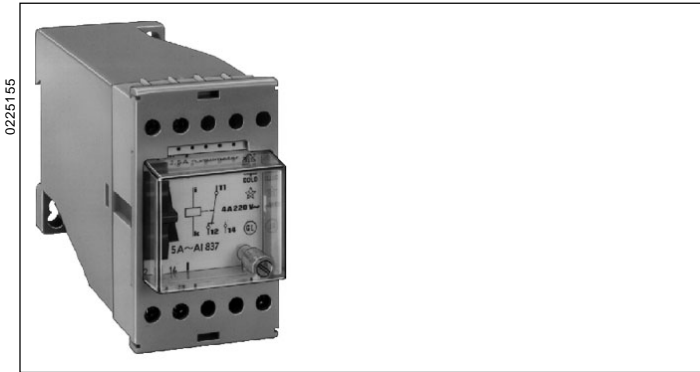
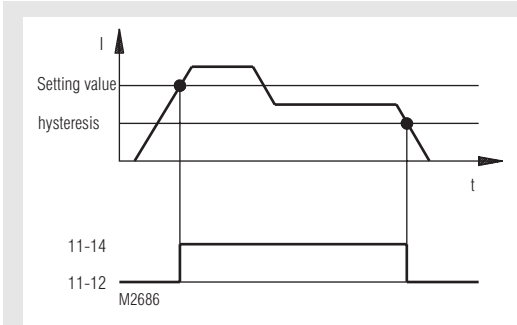


Undercurrent relay AI 837, Overcurrent relay AI 838 varimeter

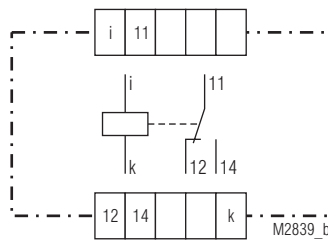


- According to IEC 255, EN 60 255, VDE 0435 part 303
- Single-phase
- Without auxiliary supply
- Measuring ranges from 0,5 to 25 A
- Settable response value
- 1 changeover contact
- Width 45 mm

Function diagram



Circuit diagram



AI 837, AI 838

Approvals and marking



* see variants

Notes

On the undercurrent relay AI 837 the scale is adjusted to the resetting value. To get a signal at undercurrent, the current must first reach a value higher then reset value / hysteresis to activate the relay.

On the overcurrent relay AI 838 the scale is adjusted to the response value. When the current exceeds the setting value the relay switches on. The contact resets, as soon as the current goes under the setting value x hysteresis.

Technical data

Input

Measuring ranges:	0,5 ... 1 A	4 ... 8 A
	0,8 ... 1,6 A	6 ... 12 A
	1,5 ... 3 A	8 ... 16 A
	2,5 ... 5 A	12 ... 25 A
	50/60 Hz or DC RW ≤ 5 %	
	or DC RW ≤ 48 %	
	(please state when ordering)	

Extension of measuring range:

AC:	for current > 25 A with current transformer 5 A type Setting range on relay 2,5 ... 5 A Load capacity 18 VA Class 3
DC:	Connect shunt in parallel to measuring input 12 ... 25 A

The table is only valid when the wire between shunt and relay has a resistance of approx. 0,5 mΩ (equivalent to a copper wire with 0,3m length and 10 mm ² diameter) and the ambient temperature is 20 °C. Offset of measuring range with other wire length see Characteristics.	Nominal current of shunt	Measuring range
	25 A	21 ... 42 A
	40 A	26 ... 53 A
	60 A	33 ... 67 A
	100 A	45 ... 95 A
	150 A	63 ... 130 A
	250 A	96 ... 200 A
	400 A	147 ... 306 A
	600 A	214 ... 447 A
	1000 A	350 ... 728 A
	1500 A	518 ... 1080 A

Technical data

Internal resistance:	DC-model	
	Current range	Ohm
	AI 837	AI 838
	0,5 ... 1 A	2,52 4,45
	0,8 ... 1,6 A	0,85 1,54
	1,5 ... 3 A	0,257 0,48
	2,5 ... 5 A	0,089 0,166
	4 ... 8 A	0,032 0,066
	6 ... 12 A	0,015 0,0273
	8 ... 16 A	0,00822 0,00822
	12 ... 25 A	0,00372 0,00372
	infinite variable	
Setting:		
Hysteresis:		
AC and DC		
residual ripple 48 %:	approx. 0,8 at beginning of scale approx. 0,9 at middle or end of scale	
DC		
residual ripple < 5 %:	approx. 0,6 at beginning of scale approx. 0,7 at middle or end of scale	
Accuracy:	AC : $\pm 2\%$ / DC: $\leq 15\%$	
Overload	continuously	
up to 12 A:	AI 837 DC	1,2 x End of scale value
	AI 837 AC	1,0 x End of scale value
	AI 838 AC/DC	1,0 x End of scale value
	for 1 sec	2,0 x End of scale value
16 A and 25 A:	AI 837 DC	1,4 x End of scale value
	AI 827 AC	1,2 x End of scale value
	AI 838 AC/DC	1,2 x End of scale value
Nominal consumption:	AC < 18 VA	

Output

Contact:	1 changeover contact
Switching delay:	approx. 100 ms longer times with external timer
Thermal current I_{th}:	6 A
Switching capacity	AC 24 V 110 V 230 V 380 V
cos. φ 1 ... 0,7:	4 A 4 A 4 A 3 A
cos. φ 0,4:	3 A 3 A 3 A 2,5 A
	DC 24 V 60 V 110 V 220 V
resistive:	1 A 0,4 A 0,3 A 0,15 A
inductive:	0,5 A 0,2 A 0,15 A 0,08 A
Electrical life:	5 x 10 ⁶ switching cycles 3000 switching cycles / h at 30 % of the switching capacity 3 x 10 ⁶ switching cycles 1000 switching cycles / h bei 50 % of the switching capacity 1 x 10 ⁶ switching cycles 500 switching cycles / h bei 100 % of the switching capacity
Permissible switching frequency:	1000 switching cycles / h
Short circuit strength	
max. fuse rating:	10 A gL IEC/EN 60 947-5-1
Mechanical life:	> 5 x 10 ⁶ switching cycles

General data

Operating mode:	Continuous operation	
Temperature range:	- 10 ... + 45°C	
Clearance and creepage distances		
overvoltage category /		
contamination level:	4 kV / 2	IEC 60 664-1
EMC		
Electrostatic discharge:	8 kV (air)	IEC/EN 61 000-4-2
HF irradiation:	10 V/m	IEC/EN 61 000-4-3
Fast transients:	4 kV	IEC/EN 61 000-4-4
Surge voltages		
between		
wires for power supply:	2 kV	IEC/EN 61 000-4-5
between wire and ground:	4 kV	IEC/EN 61 000-4-5
HF-wire guided:	10 V	IEC/EN 61 000-5-6
Interference suppression:	Limit value class B	EN 55 011
Degree of protection:	Housing: IP 40	IEC/EN 60 529
	Terminals: IP 20	IEC/EN 60 529

Technical data

Housing:	Thermoplastic with V0 behaviour according to UL subject 94
Vibration resistance:	Amplitude 0,35 mm frequency 10...55Hz IEC/EN 60 068-2-6
Climate resistance:	10 / 045 / 04 IEC/EN 60 068-1
Wire connection:	2 x 2,5 mm ² solid or 2 x 1,5 mm ² stranded wire with sleeve DIN 46 228-1/-2/-3/-4 AC/DC 16 and 25 A: 1 x 10 mm ² solid
Wire fixing:	Flat terminals with self-lifting clamping piece IEC/EN 60 999-1
Mounting:	DIN rail IEC/EN 60 715
Weight:	600 g

Dimensions

Width x height x depth: 45 x 77 x 125 mm

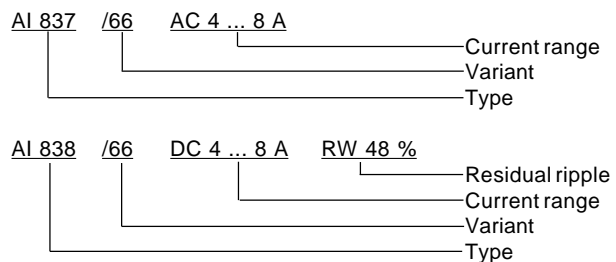
Standard types

AI 837 AC 2,5 ... 5 A		
Article number:	0000850	stock item
AI 838 AC 2,5 ... 5 A		
Article number:	0000873	stock item
• Measuring range:	AC 2,5 ... 5 A	
• Width:	45 mm	

Variants

AI 837/66:	German Lloyd
AI 838/66:	German Lloyd

Ordering example for variants



Accessories

Setting ranges 8 ... 16 A and 12 ... 25 A

To wire the unit with bigger terminals a special tool is delivered with the unit

Characteristics

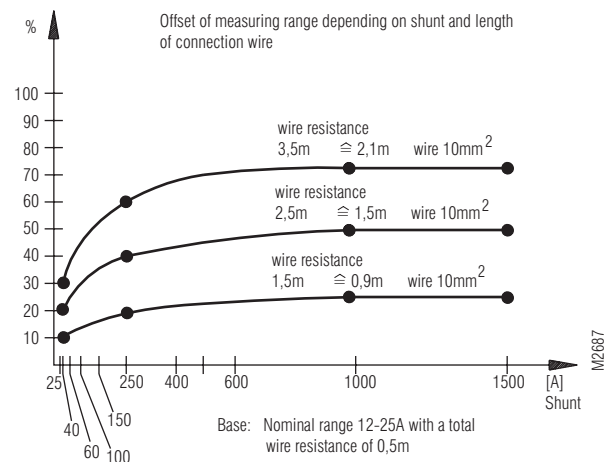


Diagram offset of measuring range