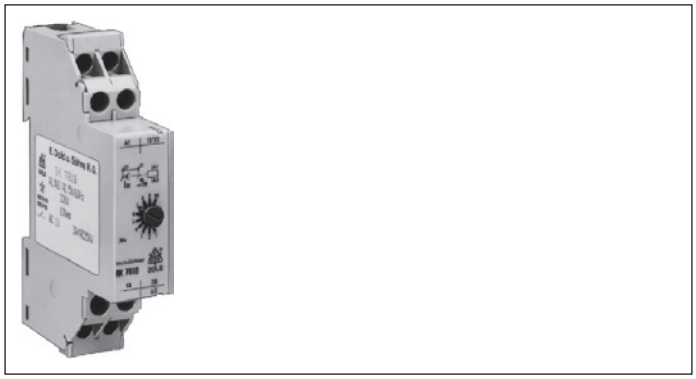
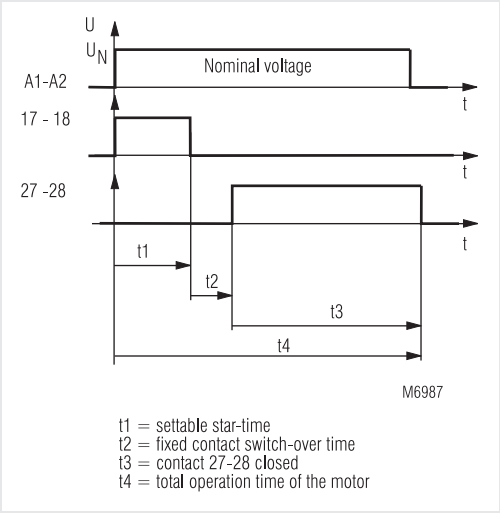
MINITIMER
Star-Delta Time Relay
IK 7818



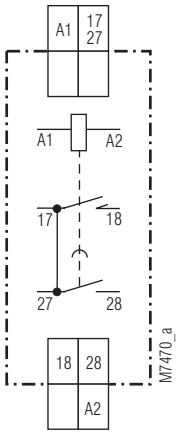
- According to IEC/EN 61 812-1
- 1 NO contact fleeting on make, 1 NO contact operate delayed
- Delay up to 100 s
- Width 17.5 mm

Function Diagram



t1 = settable star-time
t2 = fixed contact switch-over time
t3 = contact 27-28 closed
t4 = total operation time of the motor

Circuit Diagram



Approvals and Marking

CE

Application

Star-delta starting circuits for three-phase motors

Function

IK 7818 is a static star-delta time relay with two separate output relays. Relay 1 is energized as soon as the operating voltage is available and returns to its home position when the set starting period is over. When the contact changeover time - that has to be indicated when an order is placed - has expired, the second relay is actuated and remains switched on as long as the star-delta time relay is provided with voltage.

Technical Data

Time circuit

Time ranges:	0.5 ... 10 s 1.5 ... 30 s 3.0 ... 60 s 5.0 ... 100 s
Time setting:	Infinitely variable, on relative scale
Contact changeover time:	approx. 100 ms Depending on order approx. 35 ms See ordering
Recovery time:	
tw 50 / 100:	< 40 ms
Repeat accuracy:	≤ 0.5 %
Voltage influence:	≤ 1 % bei 0.8 ... 1.1 U_N
Temperature influence:	0.1 % / K

Input

Nominal voltage U_N:	AC 110 ... 127, 220 ... 240 V AC/DC 24 V
Voltage range:	AC 0.8 ... 1.1 U_N DC 0.9 ... 1.25 U_N
Nominal consumption:	
AC 230 V:	4 VA
AC/DC 24 V:	0.2 W
Nominal frequency:	50 / 60 Hz
Frequency range:	± 5 %

Output

Contacts	
IK 7818.38:	1 NO contact / fleeting on make 1 NO contact / operate delayed
Release time of the contacts:	About 40 ms
Nominal output voltage:	AC 250 V
Thermal current I_{th}:	3 A at t_u = 45°C

Technical Data

Switching capacity
to AC 15

NO contact:	3 A / AC 230 V	IEC/EN 60 947-5-1
NC contact:	1 A / AC 230 V	IEC/EN 60 947-5-1
Electrical life		IEC/EN 60 947-5-1
to AC 15 at 3 A, AC 230 V:	5 x 10^5 switching cycles (see characteristics)	
Permissible switching frequency:	6 000 switching cycles/h	
Short circuit strength		
max. fuse rating:	4 AgL	IEC/EN 60 947-5-1
Mechanical life:	100 x 10^6 switching cycles	

General Data

Operating mode:	Continuous operation	
Temperature range:	- 20 ... + 60°C	
Clearance and creepage distances		
Rated impuls voltage/ pollution degree:	4 kV / 2	IEC 60 664-1
EMC		
Electrostatic discharge:	6 kV (contact)	IEC/EN 61 000-4-2
HF irradiation:	10 V/m	IEC/EN 61 000-4-3
Fast transients:	2 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
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
Housing:	Thermoplastic with V0 behaviour according to UL Subj. 94	
Vibration resistance:	Amplitude 0.35 mm frequency 10 ... 55 Hz	IEC/EN 60 068-2-6
Climate resistance:	20 / 060 / 04	IEC/EN 60 068-1
Terminal designation:	EN 50 005	
Wire connection:	2 x 2.5 mm² solid or 2 x 1.5 mm² stranded ferruled DIN 46 228-1/-2/-3/-4	
Wire fixing:	Flat terminals with self-lifting clamping piece	IEC/EN 60 999-1
Mounting:	DIN rail	IEC/EN 60 715
Weight:	75 g	

Dimensions

Width x height x depth:	17.5 x 90 x 58 mm

Standard Type

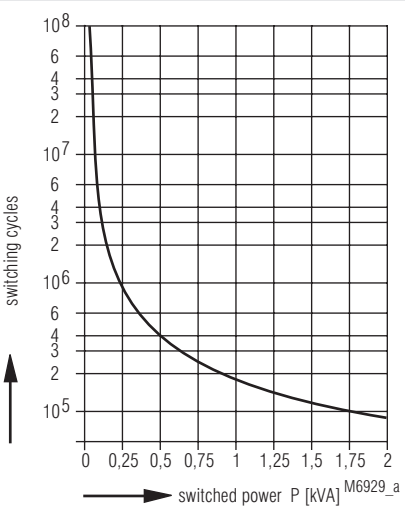
IK 7818.38 AC 220 ... 240 V	10 s / 100 ms
Article number:	0040962
• Nominal voltage U_N:	AC 220 ... 240 V
• Delay:	0.5 ... 10 s
• Contact changeover time:	100 ms
• Width:	17.5 mm

Ordering Example

IK 7818 .38 AC 220 ... 240 V 50 / 60 Hz 30 s / 35 ms

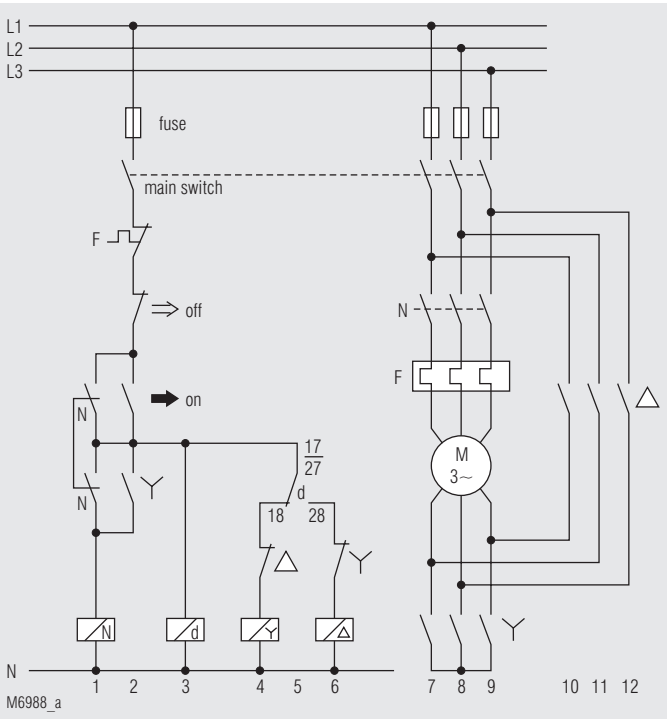
- 30 s / 35 ms: Time range max. value/ changeover time
- 50 / 60 Hz: Nominal frequency
- AC 220 ... 240 V: Nominal voltage
- .38: Contacts
- IK 7818: Type

Characteristics



Electrical life

Connection Example



d = star-delta timer
N = main contactor
Y = star contactor
Δ = delta contactor

Example of the control circuit of a star-delta starting unit with the electronic time relay IK 7818:
The star-delta time relay is energized by pressing the „On" pushbutton and the contact d moves to position 17 / 27 · 18. The star contactor Y is activated. The mains supply contactor N is switched on via the contact Y in the current path 2 and locks via the contacts N in the current path 1. The motor M starts in the Y circuit during the delay set on the time relay d. When the delay is over, the contact 17 / 27 · 18 opens and the Y contactor is released. After about 35 ms or 100 ms (depending on the unit), the contact d 17 / 27 · 28 closes and the Δ–contactor is activated. The motor M continues to run in the Δ–circuit until the mains supply contactor N is de-energized by pressing the „Off" pushbutton.

The whole of the starting procedure commences again from the beginning after the system has been switched off and after every interruption in the starting operation.
The purpose of the NC contact Y in the current path 6 and Δ in the current path 4 is to make sure that the Y and Δ contactor are not connected through at the same time if the Y or Δ contactor happens to „stick".