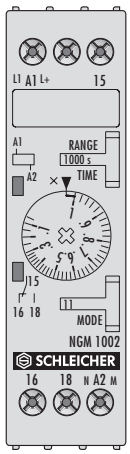


NGM 1002

Multi-function multi-range time relay

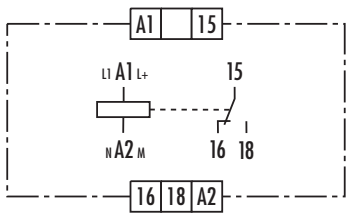
- Multi-voltage for AC/DC 24 to 240 V
- 10 functions
- Setting range from 0.1 s to 300 h divided into 16 switchable time ranges
- 1 changeover contact
- 2 LEDs for function display

Time ranges

Setting range from 0.1 s to 300 h divided into:

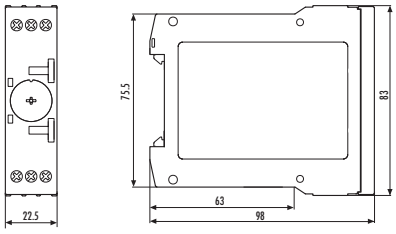
≤ 0.1	to	1	s	1.5	to	30	min
0.15	to	3	s	3	to	60	min
0.5	to	10	s	5	to	100	min
1.5	to	30	s	0.15	to	3	h
5	to	100	s	0.5	to	10	h
15	to	300	s	1.5	to	30	h
0.5	to	10	min	5	to	100	h
50	to	1000	s	15	to	300	h

Connection diagram



KS 250-28

Dimensions



K 3-1

Ordering designation

NGM 1002

Price code: 28.1

Features

Setting the Function
The function is set with the MODE selector switch and displayed by the function code in the window next to it. The code designation for the function can be found in the "Functions" column.

Setting the time delay
The time range is set with the RANGE selector switch and displayed in the window next to it. The required delay time is set with a setting wheel.

LEDs show the state of the excitation input and the position of the contacts. You can monitor the countdown on a flashing LED.

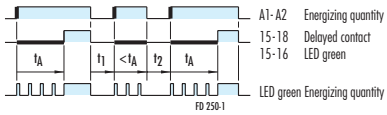
Note

The device is designed for multi-voltage. Connect phase L1 or L + to terminal A1 and neutral N or M to terminal A2.

You can change the function or the delay time during operation. The change is effective immediately.

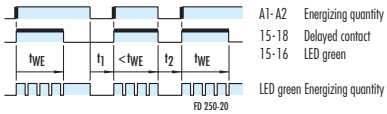
Functions

Function code 11 = ON-delay



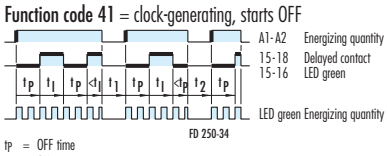
t_A = Operating time
t_1 = Break time, must be > recovery time 1
t_2 = Break time, must be > recovery time 2

Function code 21 = interval ON



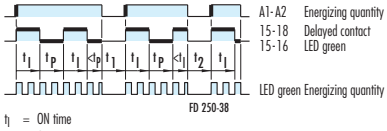
t_{WE} = Interval ON time
t_1 = Break time, must be > recovery time 1
t_2 = Break time, must be > recovery time 2

Function code 41 = clock-generating, starts OFF



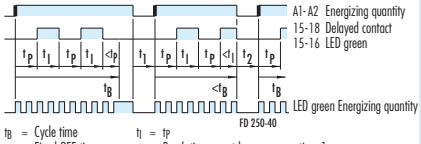
t_P = OFF time
t_I = ON time
t_P = t_I
t_1 = Break time, must be > recovery time 1
t_2 = Break time, must be > recovery time 2

Function code 42 = clock-generating, starts ON



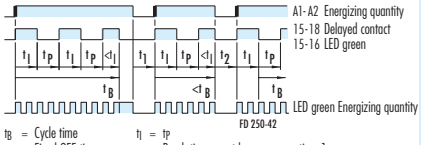
t_I = ON time
t_P = OFF time
t_I = t_P
t_1 = Break time, must be > recovery time 1
t_2 = Break time, must be > recovery time 2

Function code 43 = clock-generating, 0.5 s fixed OFF and ON time, starts OFF, with cycle time setting range



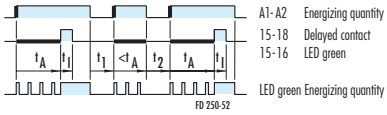
t_B = Cycle time
t_P = Fixed OFF time
t_I = Fixed ON time
t_I = t_P
t_1 = Break time, must be > recovery time 1
t_2 = Break time, must be > recovery time 2

Function code 44 = clock-generating, 0.5 s fixed ON, and OFF time, starts ON, with cycle time setting range



t_B = Cycle time
t_P = Fixed OFF time
t_I = Fixed ON time
t_I = t_P
t_1 = Break time, must be > recovery time 1
t_2 = Break time, must be > recovery time 2

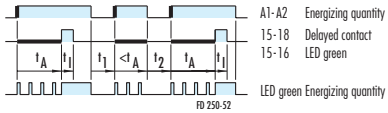
Function code 81-1 s = ON-delay, pulse-generating, 1 s fixed ON time



t_A = Operating time
t_I = Fixed ON time
t_1 = Break time, must be > recovery time 1
t_2 = Break time, must be > recovery time 2

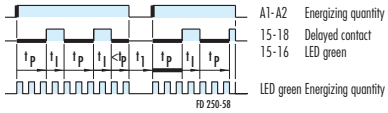
Functions

Function code 81-2 s = ON-delay, pulse-generating, 2 s fixed ON time



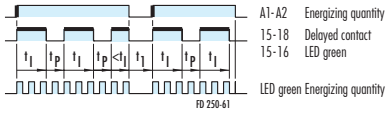
t_A = Operating time
t_I = Fixed ON time
t_1 = Break time, must be > recovery time 1
t_2 = Break time, must be > recovery time 2

Function code 83-1 s = pulse-generating, starts OFF, 1 s fixed ON time,



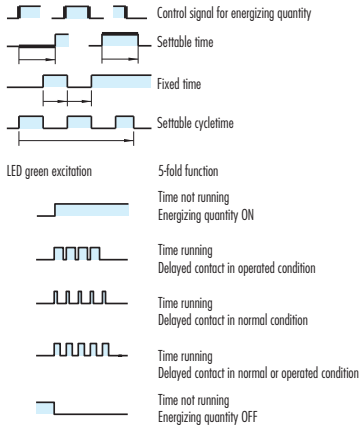
t_P = OFF time
t_I = ON time
t_1 = Break time, must be > recovery time 1

Function code 84-1 s = pulse-generating, starts ON, 1 s fixed OFF time,



t_I = ON time
t_P = OFF time
t_1 = Break time, must be > recovery time 1

Legend



Technical data

Device type	**NGM 1002**
Product norm (Time relays)	EN 61812-1:1999-08
Relay function according to IEC 60050 (445)	Multi-function relay with multi-time-range
Function diagram	See "Functions" column
Function display	2 LEDs green
Ambient operating temperature range	-25 to + 60 °C
Input circuit	
Rated voltage A1 - A2	AC/DC 24 to 240 V
Rated power AC	3.5 VA/1.7 W
Rated power DC	1.6 W
Rated voltage limits	70 to 110 %
Rated frequency f_n	50 to 60 Hz ± 5 %
Release value of input voltage (line capacitance approx. 150 pF/m)	≥ AC/DC 10 V; permissible line capacitance 0.2 µF
Parallel load permitted	A1 - A2 yes
Internal one-way rectifier	A1 - A2 no
Time circuit	
Time setting / number of time ranges	analog/16
Setting ranges for time delay	from ≤ 0.1 s to 300 h divided into: ≤ 0.1 to 1 s — 1.5 to 30 min 0.15 to 3 s — 3 to 60 min 0.5 to 10 s — 5 to 100 min 1.5 to 30 s — 0.15 to 3 h 5 to 100 s — 0.5 to 10 h 15 to 300 s — 1.5 to 30 h 0.5 to 10 min — 5 to 100 h 50 to 1000 s — 15 to 300 h
Recovery time 1/2/3	See table 4
Minimum ON time 1/2	See table 4
Setting tolerance	≤ ± 5 %
Repeatability (to set value)	≤ ± 0.01 % + ± 10 ms
Influence of temperature (within range)	≤ ± 0.002 %
Influence of voltage (within range)	≤ ± 0.002 %
Output circuit	
Contact equipment	1 changeover contacts
Contact material	AgNi 90/10
Rated operating voltage	AC/DC 24 to 240 V
Rated value for limiting continuous current I_{th}	5 A
Minimum contact load	≥ AC/DC 5 V/≥ 10 mA
Utilization category according to IEC 60947 - 5 - 1	AC–15 U_e AC 230 V, I_e 3 A DC–13 U_e DC 24 V, I_e 2 A
Permissible switching frequency	≤ 3600 switching cycles/h
Mechanical service life	30 x 10^6 switching cycles
Electrical service life 20/2 A, AC 250 V, cos φ = 0.3	0.12 x 10^6 switching cycles AC–15
Operate time / release time for excitation A1 - A2	40 ms
Other data	
Clearance/creepage distances to IEC 60664 - 1	
Contamination level	3 outside, 2 inside
Overvoltage category	III
Rated voltage	AC/DC 275 V
Protection class housing / terminals acc. to IEC 60529	IP 40/IP 20
Interference immunity acc. to IEC 61000 - 4	Test level 3
Dimensions (housing)	K 3 - 1
Terminal connection diagram	KS 250 - 28
Connection cross sections single or fine wire fine wire with connector sleeve	1 x 0,2 to 6 or 2 x 0,2 to 2,5 mm² 1 x 0,4 to 4 or 2 x 0,2 to 1,5 mm²
Weight	0.1 kg
General Technical Specification	NGG Catalogue