

### NLC series of timer relays

Our NLC family features universal applicability in the industrial automation sector. Up to 8 functions in just one relay cover all of your requirements and reduce storage costs as well.

Existing production processes can be easily expanded thanks to our NLC series of timer relays, without incurring additional engineering and hardware costs.

Our timer relays can be applied in bakery machines, industrial washing machines, elevators and escalators, access controls and much more.

### Features

- Ambient temperatures from  $-25\text{ °C}$  to  $+60\text{ °C}$
- Very high interference voltage resistance
- Output relays correspond to utilization category AC-15 at 230 V/3 A, DC-13 at 24 V/2 A

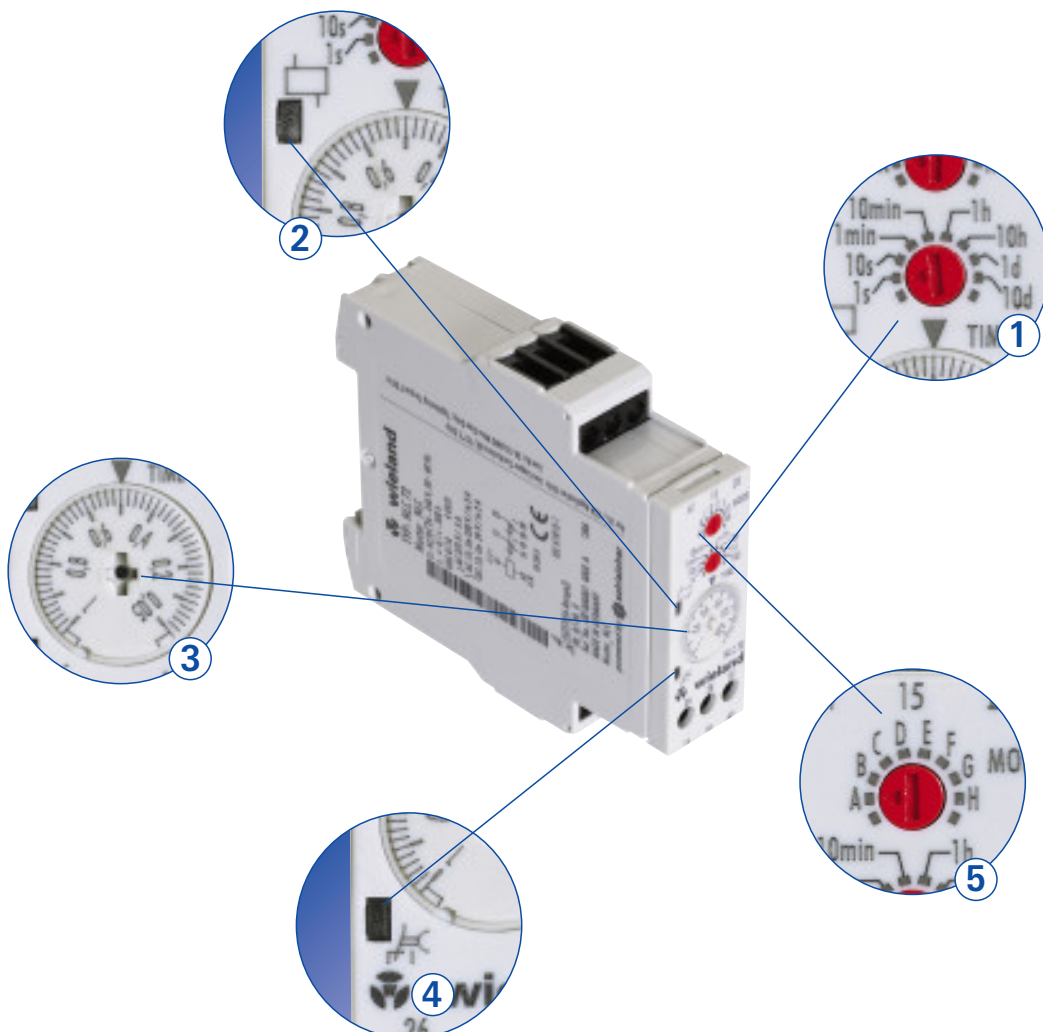
### The advantages:

- ① Time range setting
- ② Power LED with progress display
- ③ Large, clearly arranged graduated dial
- ④ LED as status indicator of the change-over contact
- ⑤ Function setting

### Technical data:

#### Multi-function relay with several time ranges:

- 8 functions
- 8 time ranges from 0.05 s to 240 h
- 1 / 2 change-over contact(s) (also as instantaneous change-over contacts)
- LED-display for function control
- Multi-voltage AC/DC 19.2 V to 264 V
- Screw connection technology



# Timer relays

## Multifunction NLC series

# interface

### Time circuits

Time settings		analog
Number of deliverable setting ranges		8
Subdivision in multiple sectors		0.05s to 240h (10d)
Parallel loads permissible		yes / B1 yes
Internal half-wave rectification		no / B1 yes
Setting tolerance	%	± 10 of full scale value
Repeatability	% ± 10 ms	< ± 1
Recovery time 1/2/3	ms	≤ 100
Voltage effect	% Δ U <sub>N</sub>	±2 % ± 10 ms
Temperature effect	% /K	± 0.5 % ± 10ms

### Output circuits

Contact material		AgNi 90/10
Contact assignment		2 (1) x timed change-over contacts
Rated switch voltage U <sub>n</sub>	V AC/DC	240
Maximum switch voltage	V AC	275
Minimum switch voltage	V AC/DC	5 / 10mA
Max. limiting continuous current per contact	A AC/DC	5
Minimum continuous current I <sub>min</sub>	mA AC/DC	10
Application category accord. to EN 60947-5-1:2004		AC-15: U <sub>e</sub> 230 V AC, I <sub>e</sub> 3 A DC-13: U <sub>e</sub> 24 V DC, I <sub>e</sub> 2 A, U <sub>e</sub> 230V, I <sub>e</sub> 0.1 A
Electrical contact life span according to EN 60947-5-1		U <sub>e</sub> 250 V AC cos Phi=0.3 I <sub>e</sub> 2A Sch = 120 x 10 <sup>3</sup> (20 Sch/h)
Permissible switching frequency	Switching cycles/h	12000 without load
Life	Switching cycles	15 x 10 <sup>6</sup>
Release time	ms	40
Short-circuit protection		max. 6 A utilization category gG

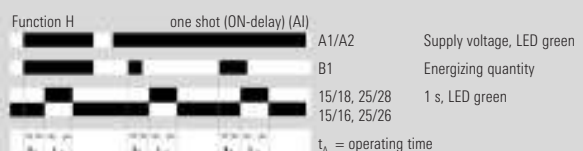
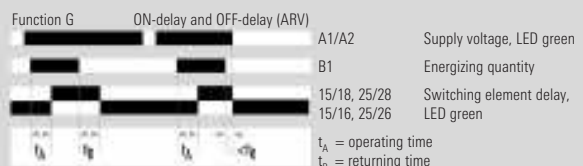
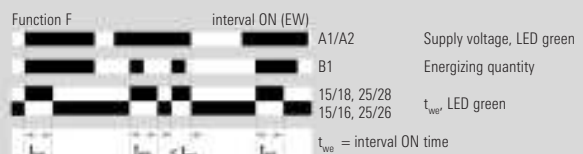
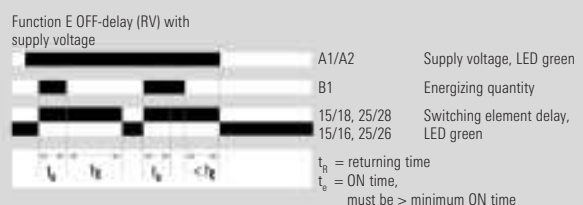
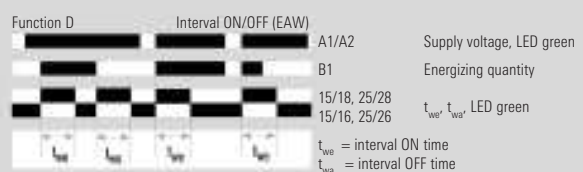
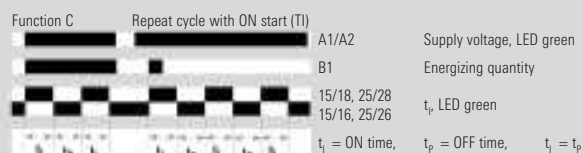
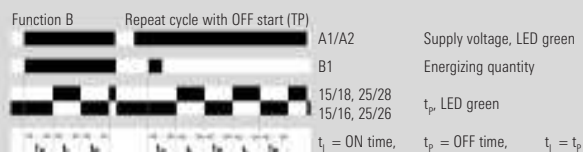
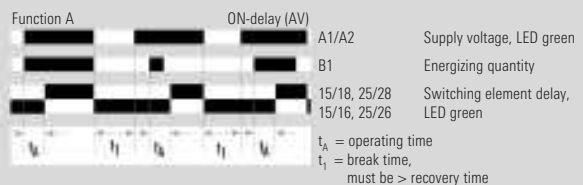
### Power supply circuits

Rated voltage UN (A1-A2, B1-A2)	V AC/DC	24 to 240
Operating voltage range	V AC/DC	19.2 to 264
Rated consumption (AC 24 V) at 50 Hz and U <sub>N</sub> (AC 230 V)	VA	3,5
Rated consumption (AC 24 V) at 50 Hz and U <sub>N</sub> (AC 230 V)	W	1,7
Rated consumption DC (DC 24 V) (DC 220 V)	W	1,6
Nominal frequency f <sub>N</sub>	Hz	50 to 60
Frequency range	%	f <sub>N</sub> +/- 5
Rated current on control connection (B1-A2)	mA	< 1,5
Operating voltage range of the energizing quantity (B1)		AC/DC 19.2 to 264 V, independent of the supply voltage
Release value	V AC/DC	> 10, perm. line capacity 0.2 μF
ON value	V AC/DC	> 15, perm. line capacity 0.2 μF

### Mechanical features

Screw		captive
Screw thread		M3
<b>Rated connection range</b>		
– rigid (solid or stranded)	mm <sup>2</sup>	0.2 - 6
– flexible	mm <sup>2</sup>	0.2 - 4
– flexible w. ferrule (w/o plastic sleeve)	mm <sup>2</sup>	0.4 - 4
– flexible w. ferrule (w. plastic sleeve)	mm <sup>2</sup>	0.2 - 4
– flexible with TWIN ferrule	mm <sup>2</sup>	0.5 - 2.5
– AWG		24 - 10
<b>Multi-wire connection</b>		<b>2 wires of the same cross section</b>
– rigid (solid or stranded):	mm <sup>2</sup>	0.2 - 2.5
– flexible (with ferrule, without plastic sleeve)	mm <sup>2</sup>	0.2 - 2.5 (0.2 – 1.5)
Insulation strip lengths	mm	8 <sup>+1</sup>

### Function diagrams



# Timer relays Multifunction NLC series interface

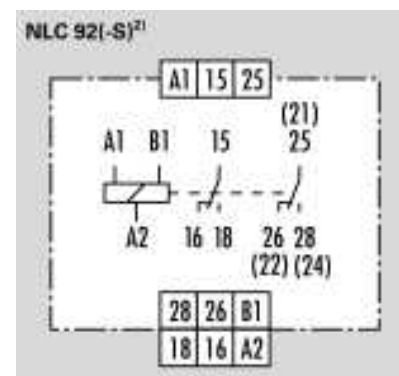
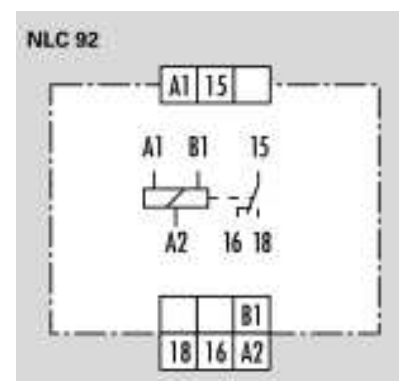
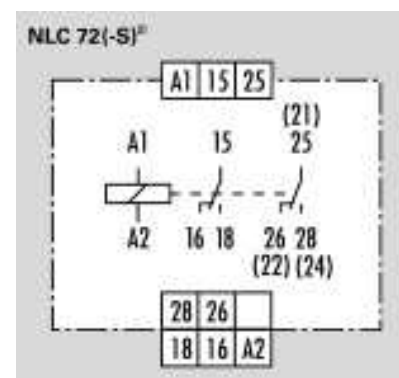
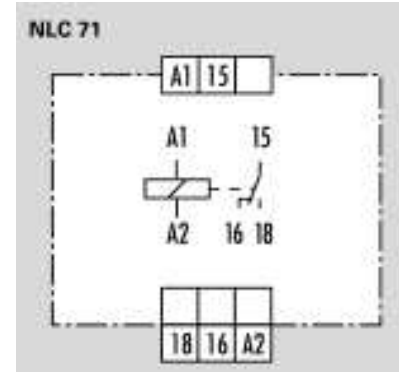
## General product description

The timer relay has operating components at the front used to set the desired functions and time range. A dial is available for precise time settings which guarantees a high repeating accuracy of the desired values. Display elements (LEDs) signaling the energizing side (input variable) and the switch position (contact change) are available for visual control of the functional sequence.

Selection of the functions (8 functions) with the "MODE" switch							
Mode	Function	NLC71	NLC72(-S) <sup>1)</sup>	NLC91	NLC92(-S) <sup>1)</sup>		
A	ON-delayed	X	X	X	X		
B	Repeat cycle with OFF start			X	X		
C	Repeat cycle with ON start	X	X	X	X		
D	Interval ON/OFF			X	X		
E	OFF-delayed			X	X		
F	Interval ON	X	X	X	X		
G	ON-delayed and OFF-delayed			X	X		
H	One shot ON-delayed	X	X	X	X		
Time selection (8 time ranges) with "TIME" switch							
Range	Time ranges	NLC71	NLC72(-S) <sup>1)</sup>	NLC91	NLC92(-S) <sup>1)</sup>		
1	0.05 s up to 1 s	X	X	X	X		
2	0.50 s up to 10 s	X	X	X	X		
3	3 s up to 1 min	X	X	X	X		
4	30 s up to 10 min	X	X	X	X		
5	3 min up to 1 h	X	X	X	X		
6	30 min up to 10 h	X	X	X	X		
7	72 min up to 1 d	X	X	X	X		
8	12 h up to 10 d	X	X	X	X		

<sup>1)</sup> Variation with instantaneous change-over contact instead of the second timed change-over contact

## Wiring diagrams



<sup>2)</sup> Instantaneous change-over contacts have other terminal designations (e.g. 21 instead of 25)





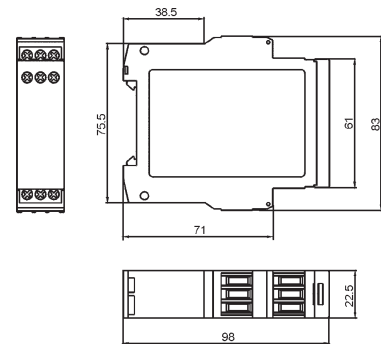
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## Dimension diagram



### AT Wieland

Components and system components for the control cabinet

- DIN rail terminal blocks
  - with screw connection
  - with spring clamp connection
  - with IDC connection
- Safety
  - Safety relays
  - Modular safety systems
- Fieldbus components
- Interface
  - Power supplies
  - Overvoltage protection
  - Measuring and monitoring relays
  - Time and switching relays
  - Coupling relays/solid state relays
  - Analog modules
  - Passive interfaces

Components and system components for field applications

- Remote automation
  - Remote power distribution
  - Remote fieldbus interface
- Industrial multipole connectors
  - Modular multipole connectors
  - High-density multipole connectors
  - High-current multipole connectors
  - Multipole connectors for hazardous areas
  - Bushings for control cabinets
  - D-Sub connectors
- Round connectors

Empty housings and appliance connectors/terminal strips

### AT Schleicher

- PLC systems and CNC based control systems
- Operator panels
- Application engineering & system solutions
- Customized products

### BIT Wieland

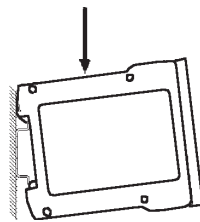
- Building installation systems
  - Mains connectors IP20/IP65...IP68
  - Bus connectors
  - Combined connectors
  - Low-voltage connectors
  - Flexible flat cable systems
  - Distribution systems
  - Switching devices for EIB/KNX, LON, radio control
  - DIN rail terminal blocks for electrical installations
  - Overvoltage protection

### PCB connectors Wieland

- PC board terminals/PC board connectors
  - with screw connection
  - with spring clamp connection
  - with TOP connection

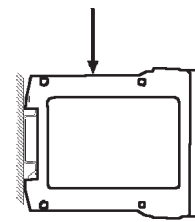
## Housing assembly

Assembly

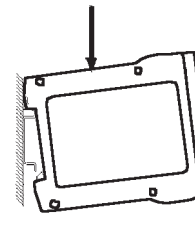


1. Hook the housing onto the DIN rail
2. Snap the housing onto the DIN rail by gently pressing it in the direction of the arrow

Disassembly



1. Press down the housing in the direction of the arrow



2. Release the housing from its latched position by holding it down and moving it in the direction of the arrow, and remove it from the DIN rail

Device type	Design	Function	Part number	Std. Pack
NLC71 AC/DC 24-240V 50-60Hz	4 functions, <b>common</b> supply and energizing infeed	8 time ranges 0.05s..240h 1 timed change-over contact	R2.068.0010.0	1
NLC72 AC/DC 24-240V 50-60Hz	4 functions, <b>common</b> supply and energizing infeed	8 time ranges 0.05s..240h 2 timed change-over contacts	R2.068.0020.0	1
NLC72-S AC/DC 24-240V 50-60Hz	4 functions, <b>common</b> supply and energizing infeed	8 time ranges 0.05s..240h 1 timed change-over contact + 1 instantaneous change-over contact	R2.068.0030.0	1
NLC91 AC/DC 24-240V 50-60Hz	8 functions, <b>separate</b> supply and energizing infeed	8 time ranges 0.05s..240h 1 timed change-over contact	R2.068.0040.0	1
NLC92 AC/DC 24-240V 50-60Hz	8 functions, <b>separate</b> supply and energizing infeed	8 time ranges 0.05s..240h 2 timed change-over contacts	R2.068.0050.0	1
NLC92-S AC/DC 24-240V 50-60Hz	8 functions, <b>separate</b> supply and energizing infeed	8 time ranges 0.05s..240h 1 timed change-over contact + 1 instantaneous change-over contact	R2.068.0060.0	1