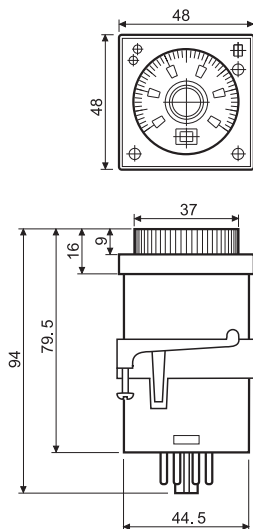


## Features

### Multi-voltage and multi-function timer range Front panel or socket mount

- 8 - 11 pin plug-in version available
- Time scales from 0.05s to 100h
- "1 delayed contact + 1 instantaneous contact" version available (type 88.12)
- Front panel mounting fixing included
- 90 series sockets



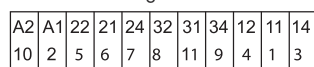
### 88.02



- Multi-function
- 11 pin
- Plug-in for use with 90 series sockets

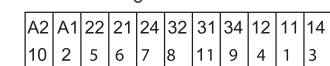
**AI:** On-delay  
**DI:** Interval  
**GI:** Pulse delayed  
**SW:** Symmetrical flasher (starting pulse on)

without control signal



**BE:** Off-delay with control signal  
**CE:** On- and off-delay with control signal  
**DE:** Interval with control signal on

with control signal



P = Pause  
S = Start  
R = Reset

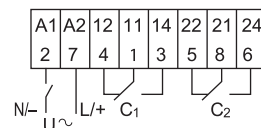
### 88.12



- Multi-function
- 8 pin, 2 timed contacts or  
1 timed + 1 instantaneous contact
- Plug-in for use with 90 series sockets

**AI a:** On-delay (2 timed contacts)  
**AI b:** On-delay (1 timed + 1 instantaneous contact)  
**DI a:** Interval (2 timed contacts)  
**DI b:** Interval (1 timed + 1 instantaneous contact)  
**GI:** Pulse delayed  
**SW:** Symmetrical flasher (starting pulse on)

without control signal



### Contact specification

Contact configuration	2 CO (DPDT)	2 CO (DPDT)
Rated current/Maximum peak current A	8/15	5/10
Rated voltage/Maximum switching voltage V AC	250/250	250/400
Rated load AC1 VA	2,000	1,250
Rated load AC15 (230 V AC) VA	400	250
Single phase motor rating (230 V AC) kW	0.3	0.125
Breaking capacity DC1: 30/110/220 V A	8/0.3/0.12	5/0.3/0.12
Minimum switching load mW (V/mA)	300 (5/5)	500 (5/5)
Standard contact material	AgNi	AgCdO

### Supply specification

Nominal voltage (U <sub>N</sub> ) V AC (50/60 Hz)	24...230	24...230
V DC	24...230	24...230
Rated power AC/DC VA (50 Hz)/W	2.5 (230 V)/1 (24 V)	2.5 (230 V)/1.5 (24 V)
Operating range V AC	20.4...264.5	20.4...264.5
V DC	20.4...264.5	20.4...264.5

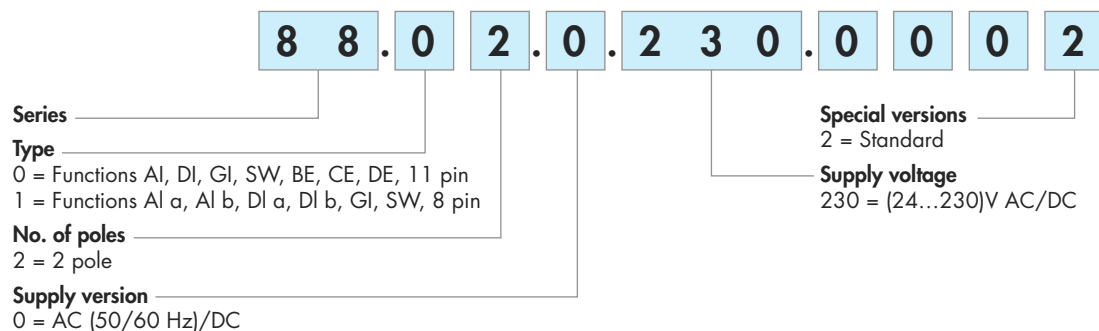
### Technical data

Specified time range	(0.05 s...5 h) - (0.05 s...10 h) - (0.05 s...50 h) - (0.05 s...100 h)	
Repeatability %	± 1	± 1
Recovery time ms	300	200
Minimum control impulse ms	50	—
Setting accuracy-full range %	± 3	± 3
Electrical life at rated load AC1 cycles	100·10 <sup>3</sup>	100·10 <sup>3</sup>
Ambient temperature range °C	-10...+55	-10...+55
Protection category	IP 40	IP 40

### Approvals (according to type)

## Ordering information

Example: 88 series multi-function timer, 2 CO (DPDT) contact 8 A, (24...230)V AC (50/60 Hz) and (24...230)V DC supply.



## Technical data

### EMC specifications

Type of test	Reference standard
Electrostatic discharge	
contact discharge	EN 61000-4-2
air discharge	EN 61000-4-2
Radio-frequency electromagnetic field (80 ÷ 1000 MHz)	EN 61000-4-3
Fast transients (burst) (5-50 ns, 5 kHz) on Supply terminals	EN 61000-4-4
Surges (1.2/50 µs) on Supply terminals	
common mode	EN 61000-4-5
differential mode	EN 61000-4-5
Radio-frequency common mode (0.15 ÷ 80 MHz) on Supply terminals	EN 61000-4-6

## Selection of: function, time scale and units

	88.02	88.12
<b>E Function selector</b>	AI, DI, GI, SW, BE, CE, DE	AI a, AI b, DI a, DI b, GI, SW
<b>D Time scale selector</b>	0.5, 1, 5, 10	
<b>H Unit of time selector</b>	s (second), min (minute), h (hour), 10h (10 hour)	

## Time scales

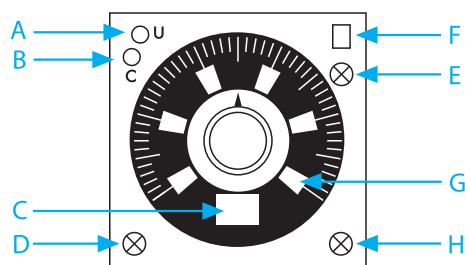
### Full scale value

D \ H	s	min	h	x10h
0.5	0.5 second	0.5 minute	0.5 hour	5 hour
1	1 second	1 minute	1 hour	10 hour
5	5 second	5 minute	5 hour	50 hour
10	10 second	10 minute	10 hour	100 hour

NOTE: time scales and functions must be set before energising the timer.

## LED/visual indication

<b>A</b>	Yellow LED: power ON (U)
<b>B</b>	Red LED: timing in progress (C)
<b>C</b>	Unit of time selected
<b>F</b>	Function selected
<b>G</b>	Time selected



## Functions

**U** = Supply Voltage

**S** = Signal switch

**P** = Pause

**R** = Reset

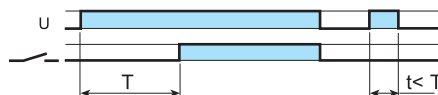
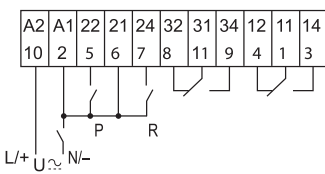
= Output Contact

LED (yellow)	LED (red)	Supply voltage	NO output contact	Contact	
Open	Closed				
		OFF	Open	x1 - x4	x1 - x2
		ON	Open	x1 - x4 x1 - x2	x1 - x2 x1 - x4
		ON	Open (timing in progress)	x1 - x4	x1 - x2
		ON	Closed	x1 - x2	x1 - x4

## Wiring diagram

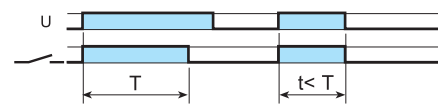
### Type 88.02

without control signal



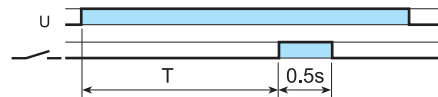
#### (AI) On-delay.

Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs when power is removed.



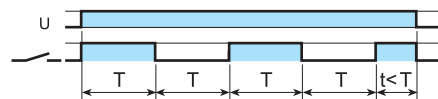
#### (DI) Interval.

Apply power to timer. Output contacts transfer immediately. After the preset time has elapsed, contacts reset.



#### (GI) Pulse delayed.

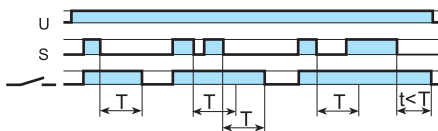
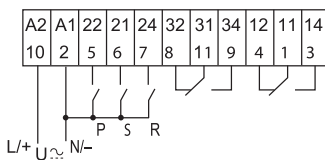
Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs after a fixed time of 0.5s.



#### (SW) Symmetrical flasher (starting pulse on).

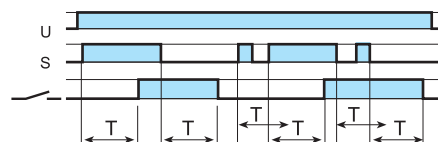
Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).

with control signal



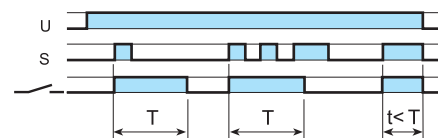
#### (BE) Off-delay with control signal.

Power is permanently applied to the timer. The output contacts transfer immediately on closure of the Signal Switch (S). Opening the Signal Switch initiates the preset delay, after which time the output contacts reset.



#### (CE) On- and off-delay with control signal.

Power is permanently applied to the timer. Closing the Signal Switch (S) initiates the preset delay, after which time the output contacts transfer. Opening the Signal Switch initiates the same preset delay, after which time the output contacts reset.



#### (DE) Interval with control signal on.

Power is permanently applied to the timer. On momentary or maintained closure of Signal Switch (S), the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.

### RESET (R)

A momentary closure of the reset switch (2-7) will reset the timer. Longer term closure of the reset switch will hold the timer in the reset state. This is applicable for all functions.

### PAUSE (P)

Closure of the pause switch (2-5) will immediately halt the timing process, but the elapsed time will be retained, and the current state of the output contacts will be maintained.

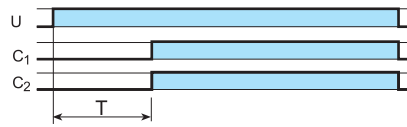
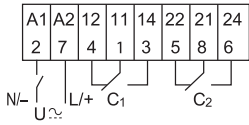
On opening of the pause switch, timing resumes from the retained value. This is applicable for all functions.

## Functions

### Wiring diagram

### Type 88.12

without control signal

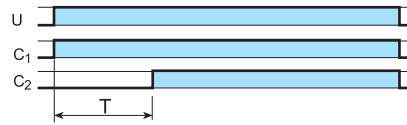


#### (AI a) On-delay (2 timed contacts).

Apply power to timer.

Contacts (C<sub>1</sub> and C<sub>2</sub>) transfer after preset time has elapsed.

Reset occurs when power is removed.

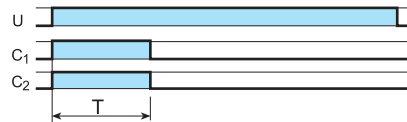


#### (AI b) On-delay

(1 timed contact + 1 instantaneous contact).

Apply power to timer. Output contact (C<sub>1</sub>) transfers immediately.

Contact (C<sub>2</sub>) transfers after the preset time has elapsed. Reset occurs when power is removed.

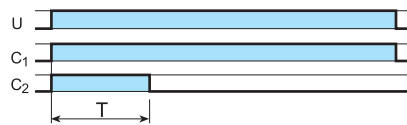


#### (DI a) Interval (2 timed contacts).

Apply power to timer.

Output contacts (C<sub>1</sub> and C<sub>2</sub>) transfer immediately.

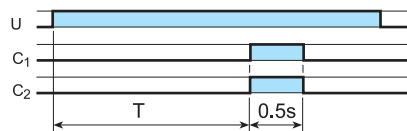
After preset time has elapsed, the contacts reset.



#### (DI b) Interval (1 timed contact + 1 instantaneous contact).

Apply power to timer. Output contacts (C<sub>1</sub> and C<sub>2</sub>) transfer immediately.

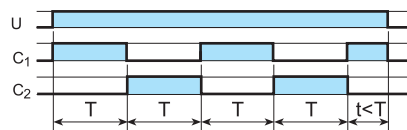
After preset time has elapsed, the contact (C<sub>2</sub>) resets. Contact (C<sub>1</sub>) resets when power is removed.



#### (GI) Pulse delayed.

Apply power to timer. Output contacts transfer after preset time has elapsed.

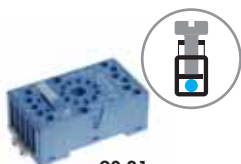
Reset occurs after a fixed time of 0.5s.



#### (SW) Symmetrical flasher (starting pulse on).

Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied.

The ratio is 1:1 (time on = time off).

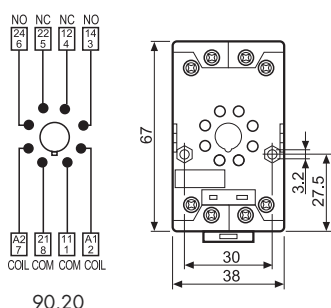


90.21

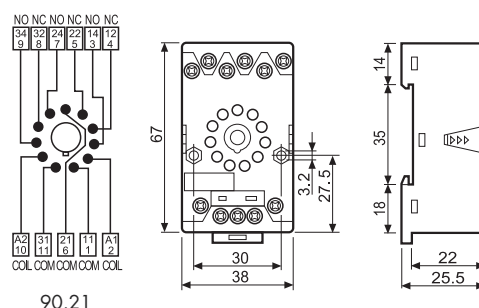
Approvals  
(according to type):



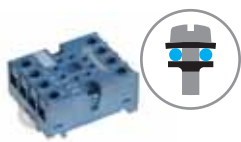
Screw terminal (Box clamp) socket	90.20	90.20.0	90.21	90.21.0
panel or 35 mm rail (EN 60715) mount	Blue	Black	Blue	Black
For timer type	88.12		88.02	
<b>Technical data</b>				
Rated values	10 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C -40...+70			
⊕ Screw torque	Nm	0.5		
Wire strip length	mm	10		
Max. wire size for 90.20 and 90.21 sockets	solid wire		stranded wire	
	mm <sup>2</sup>	1x6 / 2x2.5		1x6 / 2x2.5
	AWG	1x10 / 2x14		1x10 / 2x14



90.20



90.21

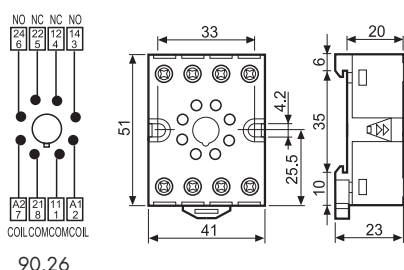


90.26

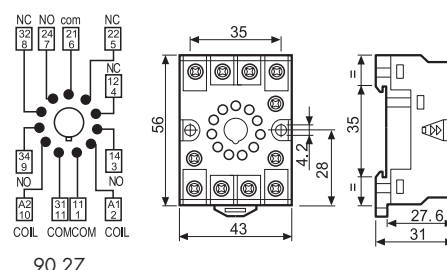
Approvals  
(according to type):



Screw terminal (Plate clamp) socket	90.26	90.26.0	90.27	90.27.0
panel or 35 mm rail (EN 60715) mount	Blue	Black	Blue	Black
For timer type	88.12		88.02	
<b>Technical data</b>				
Rated values	10 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature	°C -40...+70			
⊕ Screw torque	Nm	0.8		
Wire strip length	mm	10		
Max. wire size for 90.26 and 90.27 sockets	solid wire		stranded wire	
	mm <sup>2</sup>	1x4 / 2x2.5		1x4 / 2x2.5
	AWG	1x12 / 2x14		1x12 / 2x14



90.26



90.27

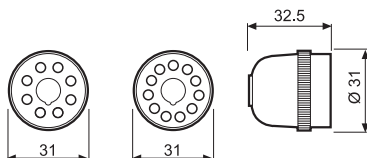


90.13.4

Approvals  
(according to type):



Sockets 8-11 pin backwired with solder terminals	90.12.4 (black)	90.13.4 (black)
For timer type	88.12	88.02
<b>Technical data</b>		
Rated values	10 A - 250 V	
Dielectric strength	2 kV AC	
Ambient temperature	°C -40...+70	



90.12.4

90.13.4