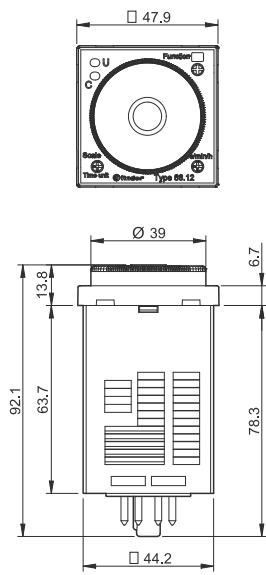


88 Series - Plug-in timers 8 A

Features

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

- 8 and 11 pin plug-in versions 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

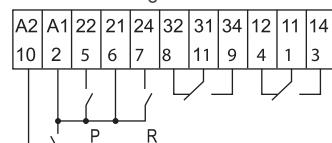


88.02

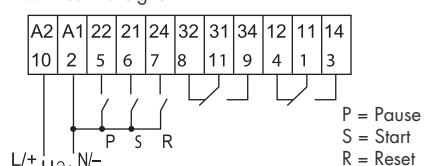


- Multi-function
- 11 pin
- Plug-in for use with 90 series sockets

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



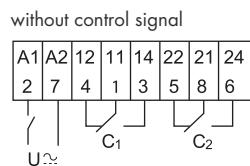
P = Pause
S = Start
R = Reset

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)



Contact specification

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

Supply specification

Nominal voltage (U _N) V AC (50/60 Hz)	24...230	24...230
	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
	20.4...264.5	20.4...264.5

Technical data

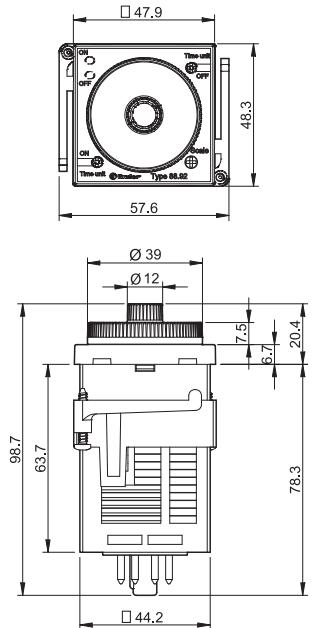
Specified time range	(0.05 s...5 h) - (0.05 s...10 h) - (0.05 s...50 h) - (0.05 s...100 h)	
Repeatability %	± 1	± 1
Recovery time ms	300	200
Minimum control impulse ms	50	—
Setting accuracy-full range %	± 3	± 3
Electrical life at rated load AC1 cycles	100·10 ³	100·10 ³
Ambient temperature range °C	-10...+55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

88 Series - Plug-in timers 8 A

Features

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

- Asymmetrical flasher The ON and OFF time are independently adjustable
- 8 pin plug-in
- Time scales from 0.05s to 300h
- 2 contacts
- Front panel mounting fixing included
- 90 series sockets

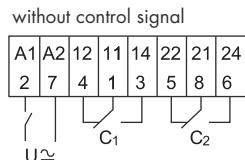


88.92 - 0000



- Mono-function
- 8 pin, 2 timed contacts
- Plug-in for use with 90 series sockets

PI: Asymmetrical flasher (starting pulse OFF)

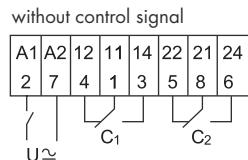


88.92 - 0001



- Mono-function
- 8 pin, 2 timed contacts
- Plug-in for use with 90 series sockets

II: Asymmetrical flasher (starting pulse ON)



Contact specification

Contact configuration

2 CO (DPDT)

2 CO (DPDT)

H

Rated current/Maximum peak current A

Rated voltage/Maximum switching voltage V AC

Rated load AC1 VA

Rated load AC15 (230 V AC) VA

Single phase motor rating (230 V AC) kW

Breaking capacity DC1: 30/110/220 V A

Minimum switching load mW (V/mA)

Standard contact material

AgNi

AgNi

Supply specification

Nominal voltage (U_N) V AC (50/60 Hz)

12...240

12...240

V DC

12...240

12...240

Rated power AC/DC VA (50 Hz)/W

2.5 (230 V)/1.5 (24 V)

2.5 (230 V)/1.5 (24 V)

Operating range V AC

10.8...264.5

10.8...264.5

V DC

10.8...264.5

10.8...264.5

Technical data

Specified time range

See "Time Scale" page 3

See "Time Scale" page 3

Repeatability %

± 1

± 1

Recovery time ms

200

200

Minimum control impulse ms

—

—

Setting accuracy-full range %

± 1

± 1

Electrical life at rated load AC1 cycles

100·10³

100·10³

Ambient temperature range °C

-10...+55

-10...+55

Protection category

IP 40

IP 40

Approvals (according to type)



88 Series - Plug-in timers 8 A

Ordering information

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

8 8 . 0 2 . 0 . 2 3 0 . 0 0 0 2

Series

Type

0 = Functions AI, DI, GI, SW, BE, CE, DE, 11 pin
1 = Functions AI a, AI b, DI a, DI b, GI, SW, 8 pin
9 = Functions LI, PI, 8 pin

No. of poles

2 = 2 pole

Supply version

0 = AC (50/60 Hz)/DC

Special versions

0 = Functions PI (starting pulse OFF) for 88.92
1 = Functions LI (starting pulse ON) for 88.92
2 = Standard

Supply voltage

230 = (24...230)V AC/DC for 88.02, 88.12
240 = (12...240)V AC/DC for 88.92

Codes

88.02.0.230.0002
88.12.0.230.0002
88.92.0.240.0000
88.92.0.240.0001

Technical data

EMC specifications

Type of test	Reference standard	88.02/88.12	88.92
Electrostatic discharge	contact discharge air discharge	EN 61000-4-2 EN 61000-4-2	4 kV 8 kV
Radio-frequency electromagnetic field (80 ÷ 1,000 MHz)	EN 61000-4-3	10 V/m	10 V/m
Fast transients (burst) (5-50 ns, 5 kHz) on Supply terminals	EN 61000-4-4	2 kV	—
Surges (1.2/50 µs) on Supply terminals	common mode differential mode	EN 61000-4-5 EN 61000-4-5	2 kV 1 kV
Radio-frequency common mode (0.15 ÷ 80 MHz) on Supply terminals	EN 61000-4-6	3 V	—

Selection of: function, time scale and units

	88.02	88.12	88.92 - 0000	88.92 - 0001
Function	AI, DI, GI, SW, BE, CE, DE	AI a, AI b, DI a, DI b, GI, SW	PI	LI
Time scale	0.5, 1, 5, 10		1.2, 3, 12, 30	
Unit of time	s (second), min (minute), h (hour), 10h (10 hours)		s (second), 10s (second x 10), min (minute), 10 min (minute x 10), h (hour), 10h (hour x 10)	

Time scales

Full scale value for types 88.02, 88.12

D	H	s	min	h	10h
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

Full scale value for type 88.92

D-E	H	s	10s	min	10min	h	10h
1.2		1.2 second	12 second	1.2 minute	12 minute	1.2 hour	12 hour
3		3 second	30 second	3 minute	30 minute	3 hour	30 hour
12		12 second	120 second	12 minute	120 minute	12 hour	120 hour
30		30 second	300 second	30 minute	300 minute	30 hour	300 hour

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

LED/visual indication

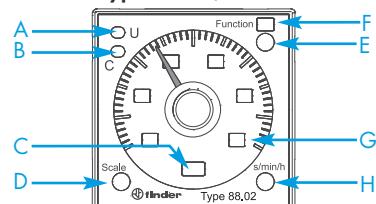
Types 88.02, 88.12

A	Yellow LED: power ON (U)
B	Red LED: timing in progress (C)
C	Unit of time selected
D	Time scale selector
E	Function selector
F	Function selected
G	Time scale selected
H	Unit of time selector

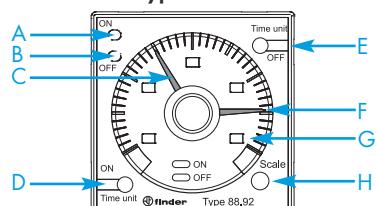
Type 88.92

A	Red LED: pulse ON (T1)
B	Green LED: pulse OFF (T2)
C	Red timing regulator: T1 time setting
D	Unit of time selector: T1 (ON)
E	Unit of time selector: T2 (OFF)
F	Green timing regulator: T2 time setting
G	Time scale selected
H	Time scale selector

Types 88.02, 88.12



Type 88.92



88 Series - Plug-in timers 8 A

Functions for types 88.02, 88.12

U = Supply Voltage

S = Signal switch

P = Pause

R = Reset

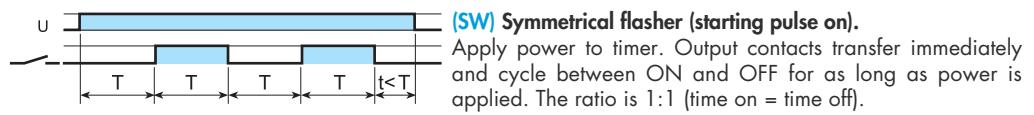
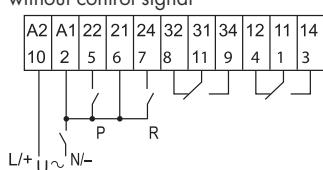
 = Output Contact

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

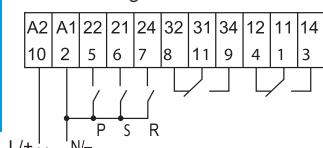
Wiring diagram

Type 88.02

without control signal



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.



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.



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)

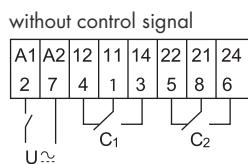
Closure of the pause switch (2-5) will immediately halt the timing process, but the elapsed time will be retained, and the current state of the output contacts will be maintained.

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

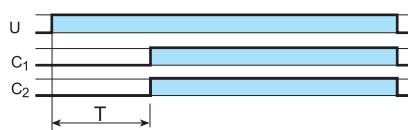
88 Series - Plug-in timers 8 A

Functions for type 88.12

Wiring diagram



Type 88.12



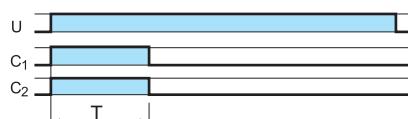
(AI a) On-delay (2 timed contacts).

Apply power to timer. Contacts (C₁ and C₂) transfer after preset time has elapsed. Reset occurs when power is removed.



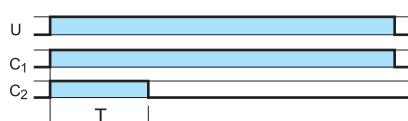
(AI b) On-delay

(1 timed contact + 1 instantaneous contact). Apply power to timer. Output contact (C₁) transfers immediately. Contact (C₂) transfers after the preset time has elapsed. Reset occurs when power is removed.



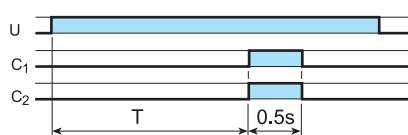
(DI a) Interval (2 timed contacts).

Apply power to timer. Output contacts (C₁ and C₂) transfer immediately. After preset time has elapsed, the contacts reset.



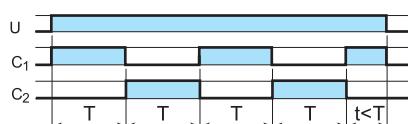
(DI b) Interval (1 timed contact + 1 instantaneous contact).

Apply power to timer. Output contacts (C₁ and C₂) transfer immediately. After preset time has elapsed, the contact (C₂) resets. Contact (C₁) 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).

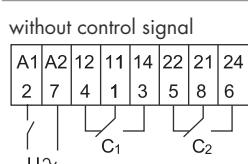
Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).

Functions for type 88.92

U = Supply Voltage

LED ON (red)	LED OFF (green)	Supply voltage	Contact
			Open Closed
		OFF	11 - 14 11 - 12 21 - 24 21 - 22
		ON	11 - 12 11 - 14 21 - 22 21 - 24
		ON	11 - 14 11 - 12 21 - 24 21 - 22

Wiring diagram

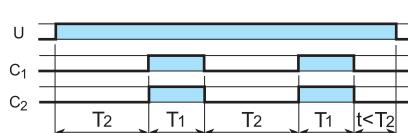


Type 88.92



(LI) Asymmetrical 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 ON and OFF times are independently adjustable.



(PI) Asymmetrical flasher (starting pulse OFF).

Apply power to timer. Output contacts transfer after time T2 has elapsed and cycle between OFF and ON for as long as power is applied. The ON and OFF times are independently adjustable.

90 Series - Sockets and Accessories for 88 series Timers

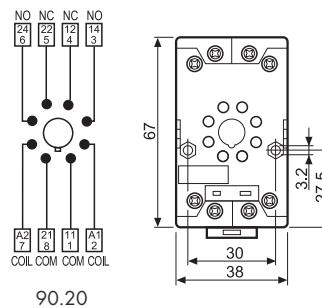


90.21

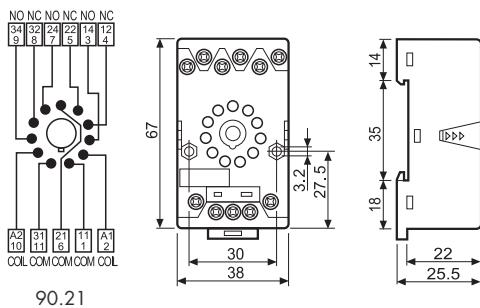
Approvals
(according to type):



Screw terminal (Box clamp) socket panel or 35 mm rail (EN 60715) mount	90.20 Blue	90.20.0 Black	90.21 Blue	90.21.0 Black
For timer type	88.12, 88.92		88.02	
Technical data				
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 mm ² 1x6 / 2x2.5 AWG 1x10 / 2x14	stranded wire mm ² 1x6 / 2x2.5 AWG 1x10 / 2x14		



90.20



90.21



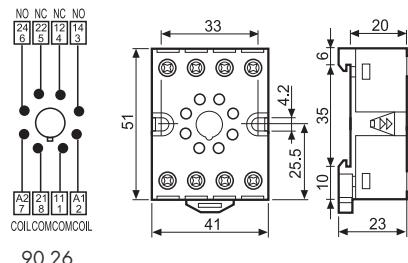
90.26

Approvals
(according to type):

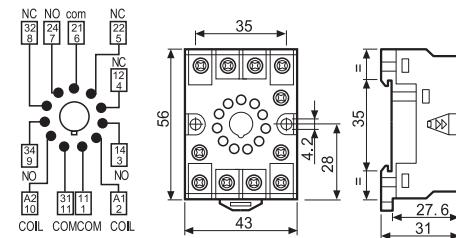


H

Screw terminal (Plate clamp) socket panel or 35 mm rail (EN 60715) mount	90.26 Blue	90.26.0 Black	90.27 Blue	90.27.0 Black
For timer type	88.12, 88.92		88.02	
Technical data				
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 mm ² 1x4 / 2x2.5 AWG 1x12 / 2x14	stranded wire mm ² 1x4 / 2x2.5 AWG 1x12 / 2x14		



90.26



90.27

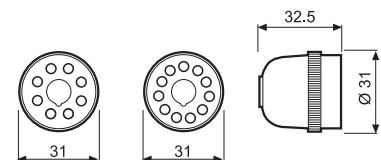


90.13.4

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, 88.92	88.02
Technical data		
Rated values	10 A - 250 V	
Dielectric strength	2 kV AC	
Ambient temperature	°C -40...+70	



90.12.4

90.13.4