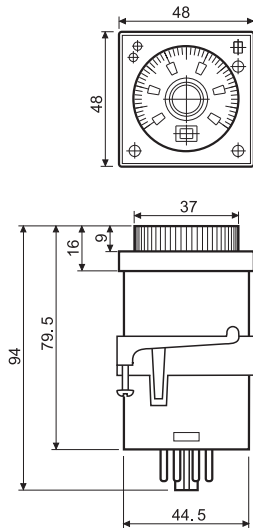


Features

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



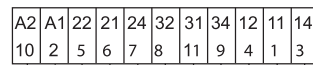
88.02



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

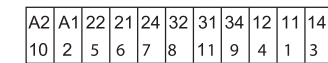
AI: On-delay
DI: Interval
GI: Pulse delayed
SW: Symmetrical flasher (starting pulse on)

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

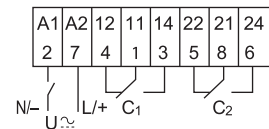
88.12



- 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 _N) | 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 ³ | 100·10 ³ |
| 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.

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
No. of poles _____
 2 = 2 pole
Supply version _____
 0 = AC (50/60 Hz)/DC

Special versions _____
 2 = Standard
Supply voltage _____
 230 = (24...230)V AC/DC

Technical data

EMC specifications

| Type of test | | Reference standard | |
|---|-------------------|--------------------|--------|
| Electrostatic discharge | contact discharge | EN 61000-4-2 | 4 kV |
| | air discharge | EN 61000-4-2 | 8 kV |
| Radio-frequency electromagnetic field (80 ÷ 1000 MHz) | | EN 61000-4-3 | 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 | EN 61000-4-5 | 2 kV |
| | differential mode | EN 61000-4-5 | 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

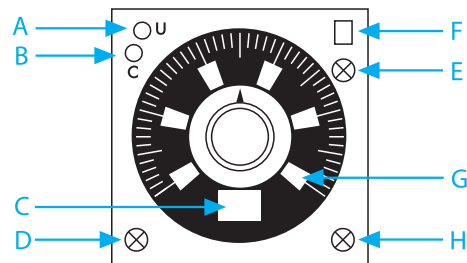
| | | 88.02 | 88.12 |
|----------|------------------------------|---|--------------------------------|
| E | Function selector | AI, DI, GI, SW, BE, CE, DE | AI a, AI b, DI a, DI b, GI, SW |
| D | Time scale selector | 0.5, 1, 5, 10 | |
| H | Unit of time selector | s (second), min (minute), h (hour),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

| | |
|----------|---------------------------------|
| A | Yellow LED: power ON (U) |
| B | Red LED: timing in progress (C) |
| C | Unit of time selected |
| F | Function selected |
| G | Time selected |

Functions

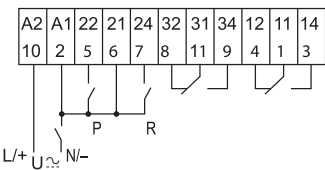
- U** = Supply Voltage
- S** = Signal switch
- P** = Pause
- R** = Reset
- = Output Contact

| 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

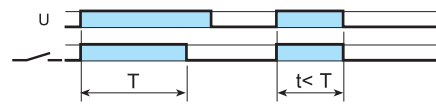
Type 88.02

without control signal



(AI) On-delay.

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



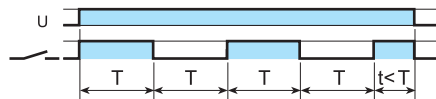
(DI) Interval.

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



(GI) Pulse delayed.

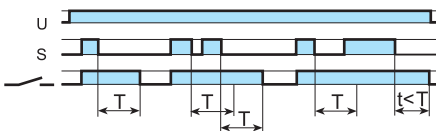
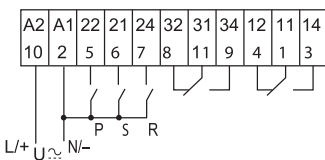
Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs after a fixed time of 0.5s.



(SW) Symmetrical flasher (starting pulse on).

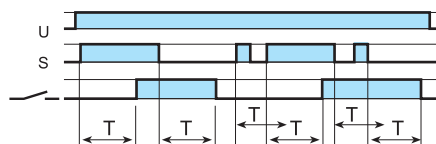
Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).

with control signal



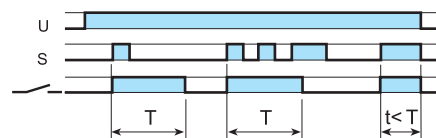
(BE) Off-delay with control signal.

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.

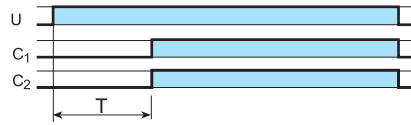
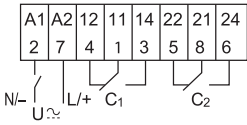
On opening of the pause switch, timing resumes from the retained value. This is applicable for all functions.

Functions

Wiring diagram

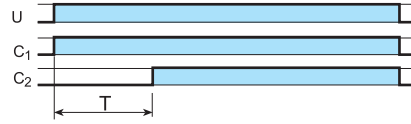
Type 88.12

without control signal



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

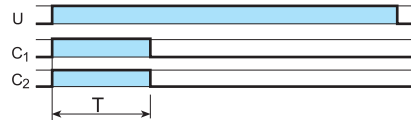
Apply power to timer.
Contacts (C₁ and C₂) transfer after preset time has elapsed.
Reset occurs when power is removed.



(AI b) On-delay

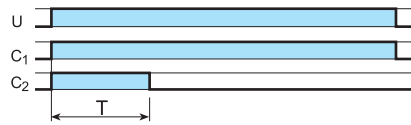
(1 timed contact + 1 instantaneous contact).

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



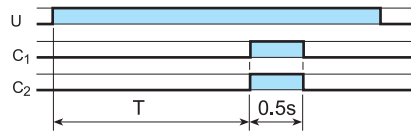
(DI a) Interval (2 timed contacts).

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



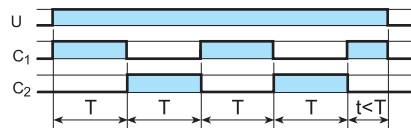
(DI b) Interval (1 timed contact + 1 instantaneous contact).

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.



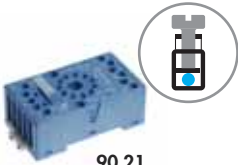
(GI) Pulse delayed.

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).

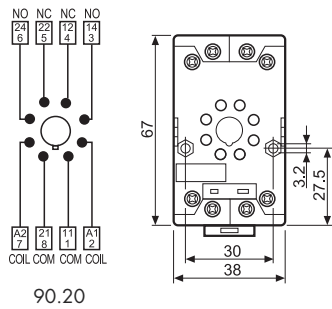


90.21

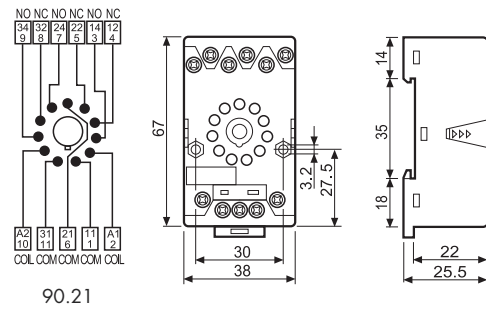
Approvals
(according to type):



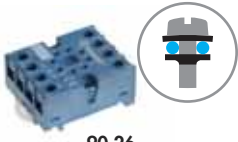
| Screw terminal (Box clamp) socket panel or 35 mm rail (EN 60715) mount | 90.20 Blue | 90.20.0 Black | 90.21 Blue | 90.21.0 Black |
|---|-----------------------------|------------------|---------------|------------------|
| For timer type | 88.12 | | 88.02 | |
| Technical data | | | | |
| Rated values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



90.20



90.21

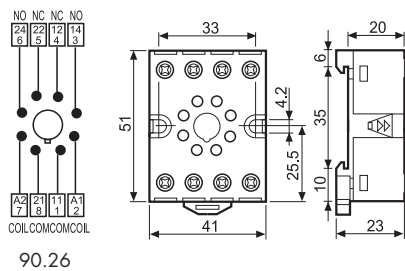


90.26

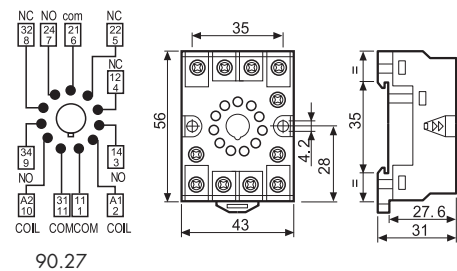
Approvals
(according to type):



| Screw terminal (Plate clamp) socket 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 | | 88.02 | |
| 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 | | stranded wire | |
| | mm ² 1x4 / 2x2.5 | | 1x4 / 2x2.5 | |
| | AWG 1x12 / 2x14 | | 1x12 / 2x14 | |



90.26



90.27

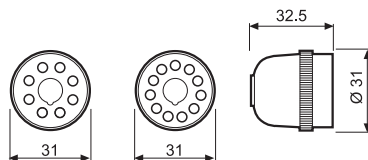


90.13.4

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



90.12.4

90.13.4