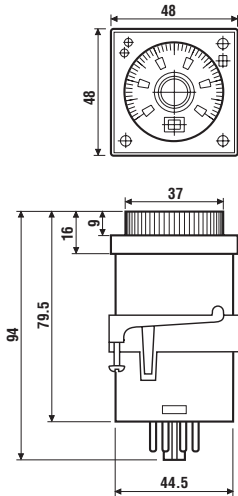


Features

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

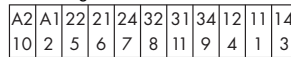


88.02



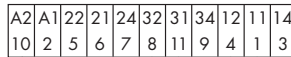
- Multi-function
- 11 pin
- Plug-in for use with 90 series sockets

AI: ON delay
DI: ON pulse
GI: Fixed pulse (0.5s) delayed
SW: Symmetrical recycling: ON start without signal START



L/+ U ~ N/-

BE: Signal OFF delay
CE: Signal ON and OFF delay
DE: Signal ON pulse with signal START



L/+ U ~ N/-

P = Pause
 S = Start
 R = Reset

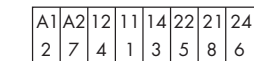
88.12



- 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: ON Pulse (2 timed contacts)
DI b: ON Pulse (1 timed + 1 instantaneous contact)
GI: Fixed pulse (0.5s) delayed
SW: Symmetrical recycling.

without signal START

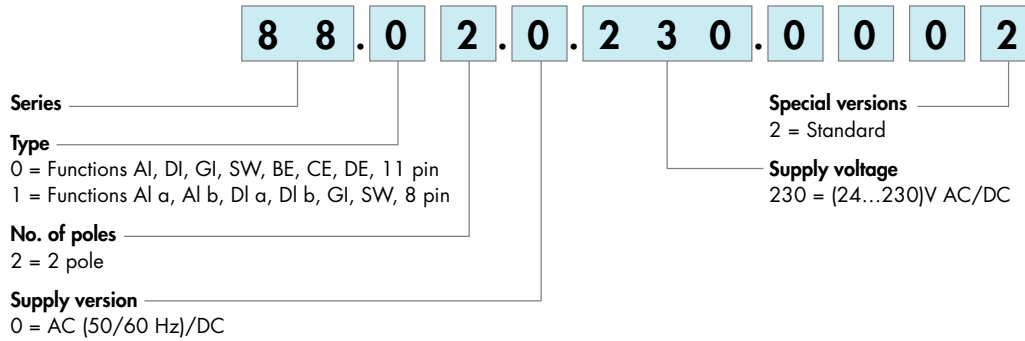


N/- U ~

| 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 | AC | 20.4...264.5 | 20.4...264.5 |
| | 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.



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

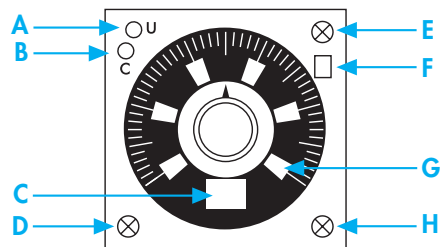
| | 88.02 | 88.12 |
|---------------------------------------|---|--------------------------------|
| E Function selector | AI, DI, GI, SW, BE, CE, DE | AI α, AI b, DI α, DI b, GI, SW |
| D Time scale selector | 0.5, 1, 5, 10 | |
| H Unit of time selector | s (second), min (minute), h (hour), 10h (10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

Time scales

Full scale value

| D \ H | s | min | h | ×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 |

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

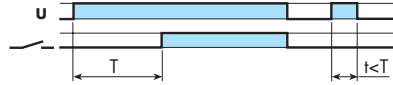
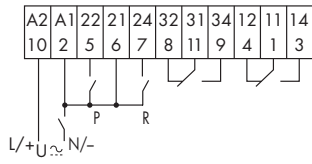
- U** = Supply Voltage
- S** = Signal switch
- P** = Pause
- R** = Reset
- = Output Contact

| 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

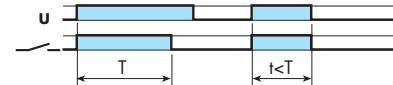
Type 88.02

without signal START



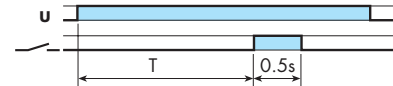
(AI) ON delay.

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



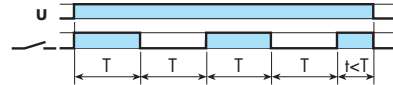
(DI) ON pulse.

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



(GI) Fixed pulse (0.5s) delayed.

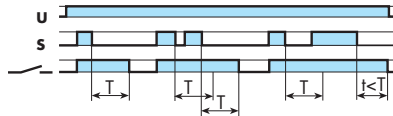
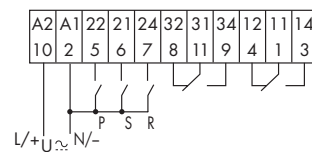
Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs after a fixed time of 0.5s.



(SW) Symmetrical recycling: ON start.

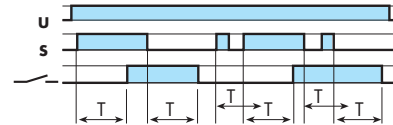
Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).

with signal START



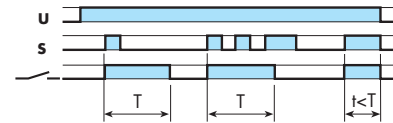
(BE) Signal OFF delay.

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) Signal ON and OFF delay.

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) Signal ON pulse.

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.

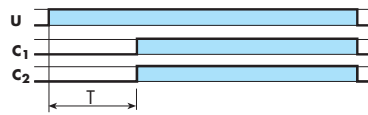
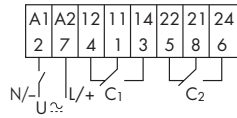
On opening of the pause switch, timing resumes from the retained value. This is applicable for all functions.

Functions

Wiring diagram

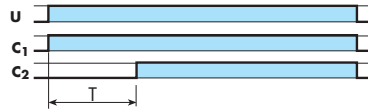
Type 88.12

without signal START



(AI a) ON Delay (2 timed contacts).

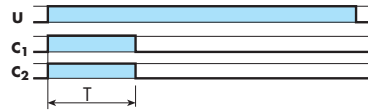
Apply power to timer.
Contacts (C₁ and C₂) transfer after preset time has elapsed.
Reset occurs when power is removed.



(AI b) ON Delay

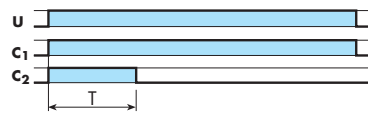
(1 timed contact + 1 instantaneous contact).

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



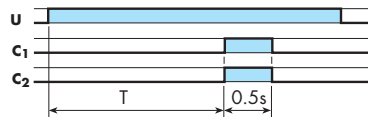
(DI a) ON pulse (2 timed contacts).

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



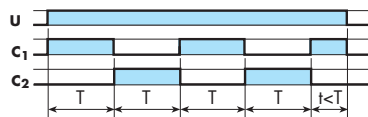
(DI b) ON pulse (1 timed contact + 1 instantaneous contact).

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) Fixed pulse (0.5s) delayed.

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



(SW) Symmetrical recycling.

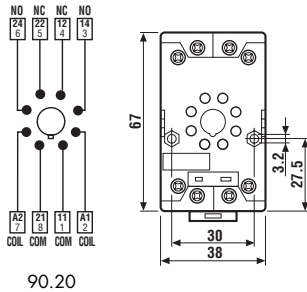
Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).



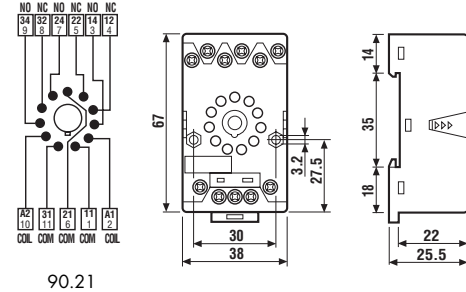
Approvals
(according to type):



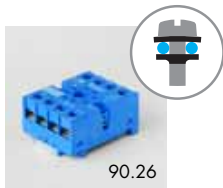
| | | | | |
|--|-----------------|----------------|---------------|----------------|
| Screw terminal (Box clamp) socket | 90.20 | 90.20.0 | 90.21 | 90.21.0 |
| panel or 35 mm rail (EN 50022) mount | Blue | Black | Blue | Black |
| For timer type | 88.12 | | 88.02 | |
| Technical data | | | | |
| Rated 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



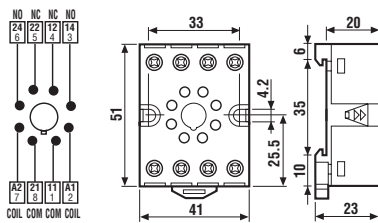
90.21



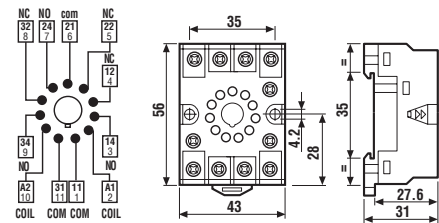
Approvals
(according to type):



| | | | | |
|--|-----------------|----------------|---------------|----------------|
| Screw terminal (Plate clamp) socket | 90.26 | 90.26.0 | 90.27 | 90.27.0 |
| panel or 35 mm rail (EN 50022) mount | Blue | Black | Blue | 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



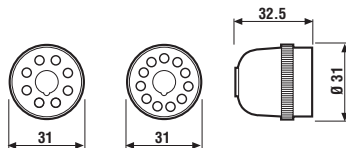
90.27



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



90.12.4

90.13.4

