

These operating instructions apply to: Type AP 117



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Scope of delivery

The AP 117 are delivered with the following components as standard:

- Electronic Timer AP 117
- Operating Instructions
- Packaging

For changes to the scope of delivery please refer to the delivery note.

Check the packaging for possible signs of transport damage.

In the event of damage to the packaging, check that the contents are complete and undamaged. If there is any damage, inform the shipping agent. Compare the scope of the delivery with the delivery note.

1 General Notes

Information on the operating instructions

Use and storage of the operating instructions

Before use of the type AP 117 electronic timers read this operating manual carefully. It is the basis for any action taken with regard to the AP 117 and may be used for training purposes. The operating manual should subsequently be stored near the product.

Target group

The target group of these operating instructions is qualified technical personnel from the mechanical engineering sector who have a fundamental knowledge of electrics and mechanics. Installation, commissioning, maintenance, fault elimination and disassembly of the AP 117 must only be performed by persons who have been instructed in the proper handling of the units.

Persons who have not been instructed accordingly must not carry out any works on the AP 117.

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Limitation of liability

All technical information, data and instructions on installation, operation and maintenance in these operating instructions are based on the latest information available at the time of printing and take into account our past experience to the best of our knowledge.







No claims can be derived from the information, illustrations and descriptions in these operating instructions.

The manufacturer does not assume liability for damages resulting from:

- failure to observe the operating instructions
- improper use
- unauthorized repairs
- technical modifications
- use of inadmissible spare parts

Translations are made to the best knowledge. **NetterVibration** does not assume liability for translation errors, even if the translation was made by us or on our behalf. Only the original German version is binding.

The following instruction and warning symbols are used in these operating instructions:

	DANGER	refers to a possible risk, which, if not avoided, can result in death or serious injury
	DANGER AUTOMATIC START	refers to a possible risk, which, if not avoided, can result in death or serious injury.
	CAUTION	refers to a possible risk, which, if not avoided, can result in serious injury and/or equipment damage.
	DISCONNECT POWER SUPPLY	refers to a possible risk, which, if not avoided, can result in serious injury.
	IMPORTANT	note with especially useful information and tips.
	ENVIRONMENTALLY FRIENDLY DISPOSAL	refers to the obligation of an environmentally friendly disposal.

Information on the AP 117

Netter type AP 117 electronic timers comply with the directive for electromagnetic compatibility 2004/108/EC and the low voltage directive 2006/95/EC.

Standards DIN EN 61010-1 and DIN EN 61326-1 have been particularly observed.

Special features

- Digital adjustment, exact to the second
- Dust and water-splash protected
- Protection type IP 65, radio interference suppression
- Operation mode: electronic, non-contact

2 Safety

Designated use:

Electronic timers are used wherever a procedure needs to be time-controlled. AP 117 electronic timers are suitable for timed activation of electric external vibrators, solenoid valves and motor overheating protection.

With these timers electric vibrators, pneumatic vibrators, pneumatic impactors and other drives can be switched on and off exactly to the second.

By selecting suitable pause times, the operation of the vibrators is optimized, drive energy can be saved and the noise level lowered.

Any other usage is considered to be improper.

The electronic timer has no safety devices of its own.

Qualified Personnel:

Installation, start-up, maintenance and fault correction of the electronic timer may only be carried out by authorized, qualified personnel.

Handling the electronic timer always lies in the responsibility of the operator.



CAUTION

Netter GmbH does not assume liability for damage or injury resulting from technical modifications to the product or failure to observe the instructions and warnings in this operating manual.



DANGER

Live parts can cause severe or even deadly injury.



DANGER



DANGER
AUTOMATIC
START

If, following a voltage interruption, power is again applied to the power supply connection, the next cycle will always begin with the set duty time.

The output is immediately energized.



DISCON-
NECT
POWER
SUPPLY

When working on the electronic timers they must be isolated from the mains supply. To do so please proceed as follows:



1. Switch off the electronic timer
2. Secure against switching on again
3. Make sure it is de-energized
4. Earth and short-circuit
5. Cover or isolate any neighboring voltage parts

3 Technical Data

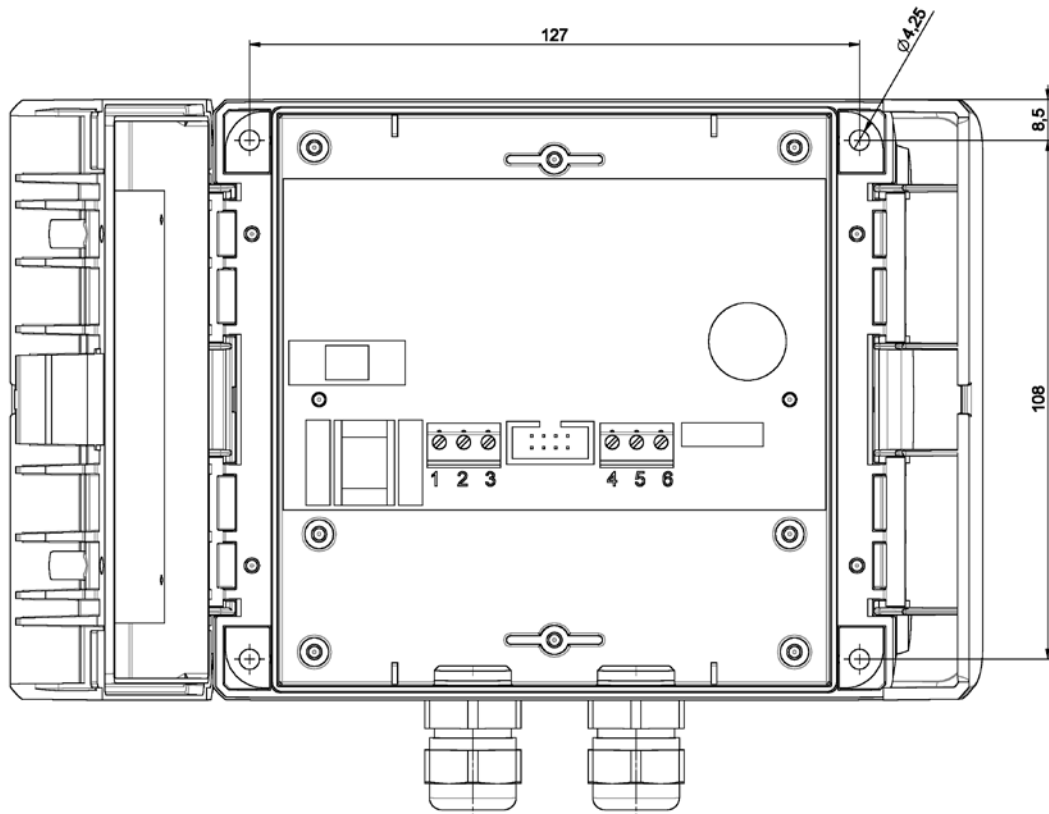
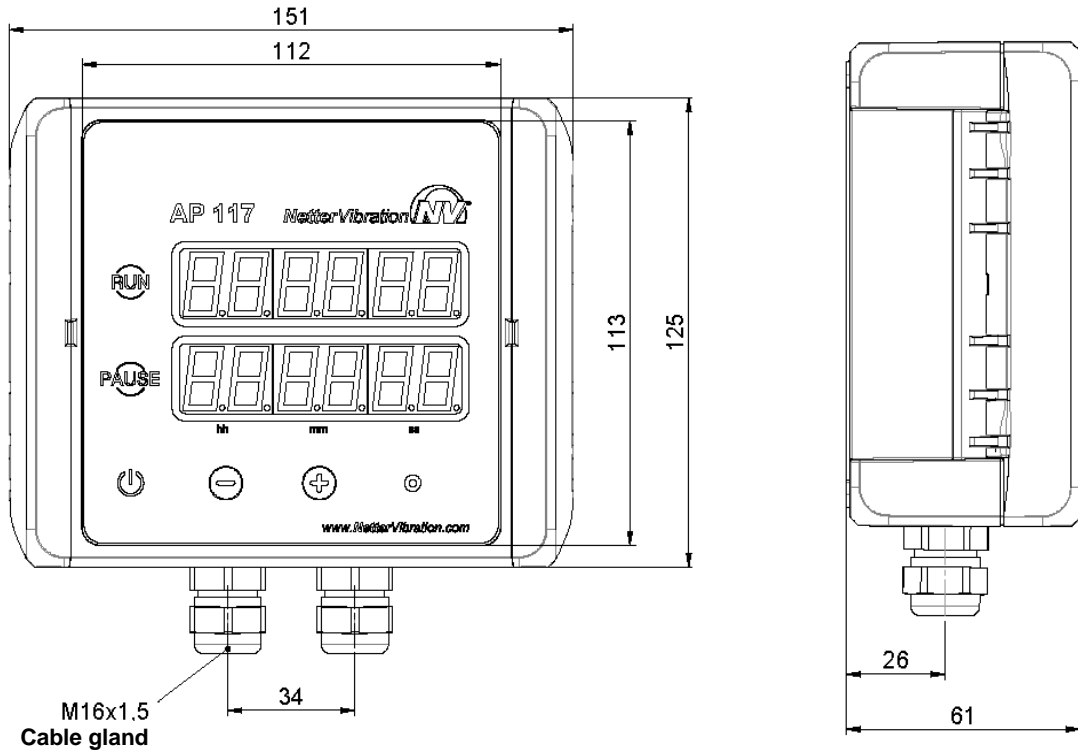


Duty time (RUN):	Exact to the second, up to max. 99h 59min 59s
Clock duty time:	Exact to the second, from 0 to max. 59 s
Clock pause time:	Exact to the second, from 0 to max. 59 s
Pause time (PAUSE):	Exact to the second, up to max. 99h 59min 59s
Own consumption:	2 VA in operation, 0.25 VA standby
Operating voltage AC:	90 V to 240 V
Switching current AC:	1.25 A
	or
Operating voltage DC:	24 V – 48 V ± 5%, protected against reverse polarity
Switching current DC:	1.25 A
Switching current DC:	at 24 V and max. +40°C to ≤ 2 A
Ambient temperature:	-20°C to +60°C The operating temperatures must not be exceeded or fallen short of.
Protection:	IP 65, RFI suppressed
Cable diameter:	4.5 mm to 10 mm

The technical data of your electronic timer can be found on the nameplate:

 NetterVibration Germany, 55252 Mainz-Kastel Tel.: +49 (0) 6134 - 2901 - 0 	
Type AP 117	No.
AC 90 V to 240 V 1,25 A	DC 24 V to 48 V 1,25 A
Year	Prot. IP65

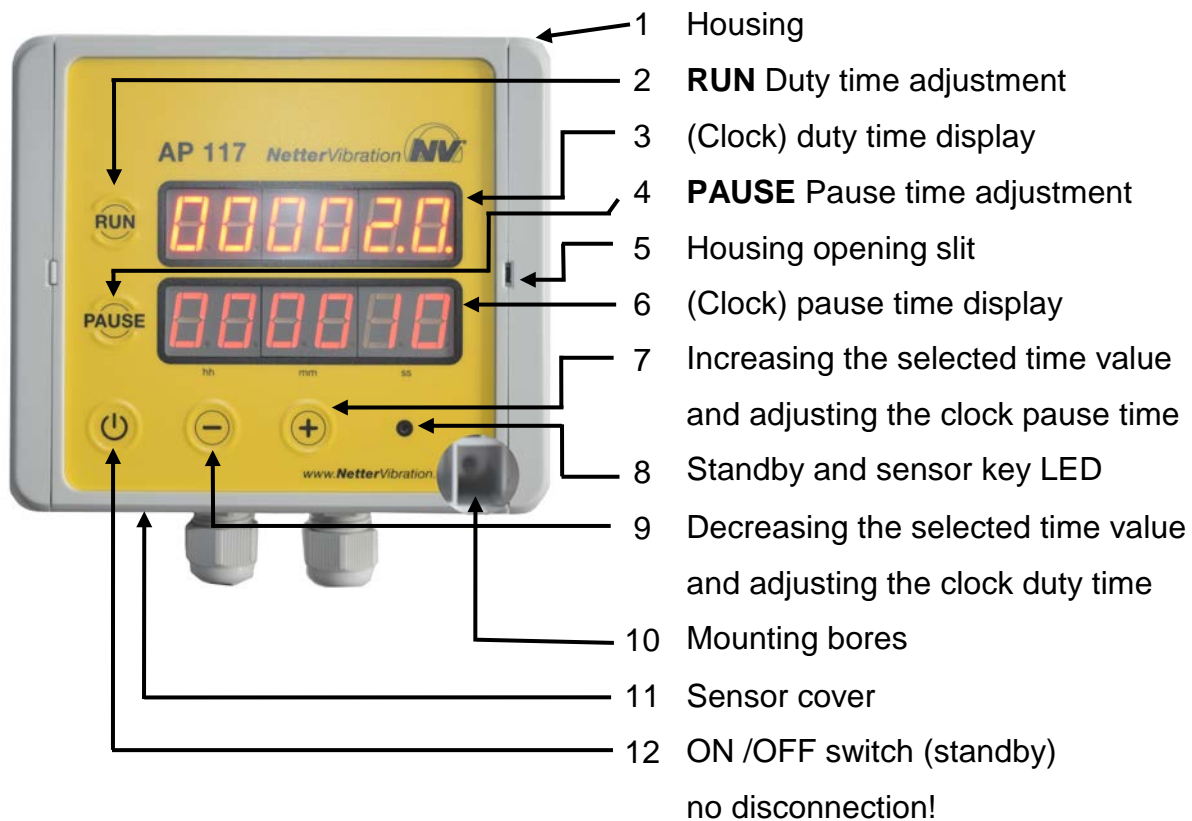
Dimensions



4 Design and Function

The electronic timer consists of two basic components:

- Voltage supply with electronic switching unit and
- Display unit with operating elements.



AP 117 has two functions:

- Function “standard”
- Function “cascade / interval / pulse mode”

Function “standard”:

The sequence begins with the duty time (RUN), which can be adjusted from 1 s to 99 h. During this time the supply voltage is applied to the timer output.

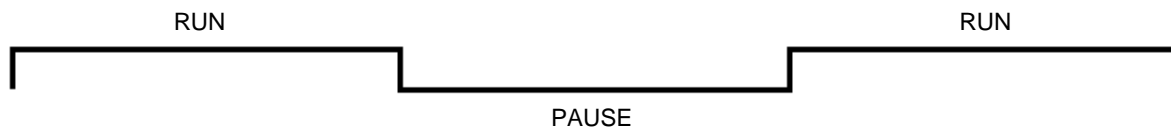
When the duty time ends, the pause time (PAUSE) of 1 s to 99 h runs, then the duty time, etc.

Function “cascade / interval / pulse mode”:

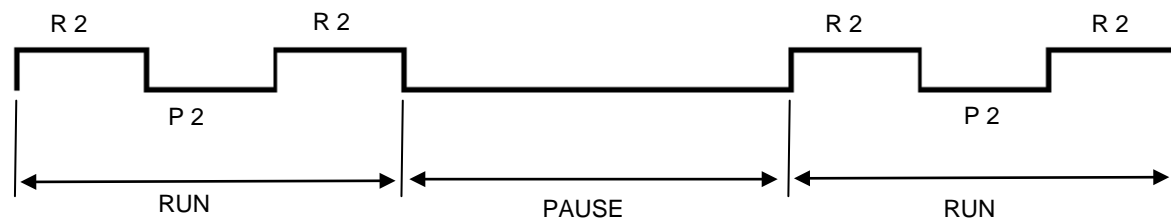
The sequence begins with the duty time, which can be adjusted from 1 s to 99 h. The duty time begins with the clock duty time (pulses), which is adjustable from 0 to 59 s. When the clock duty time ends, the clock pause time of 0 to 59 s runs, then the duty time again, etc. until the duty time ends. After that, the pause time runs.

The elapsed time is visible on the display. The respective time digits are brightly illuminated when active.

Function “standard”



Function “cascade / interval / pulse mode”



RUN = duty time
PAUSE = pause time

R 2 = clock duty time
P 2 = clock pause time

5 Transport and Storage



Check the packaging for possible signs of transport damage. In the event of damage to the packaging, check that the contents are complete and undamaged. If there is any damage, inform the shipping agent.

The electronic timer is packed ready-to-install.

At delivery the fuse is located in the socket.

When transporting electronic timers, it should be ensured that they are not subjected to severe impacts or vibrations.

The units should be stored in a clean, dry environment.

If electronic timers are in storage for longer periods, the temperature in the store-room must not be below -20°C or above 40°C and the relative air humidity must not exceed 60%.

6 Installation



CAUTION

During installation, the safety regulations in chapter 2 and the accident prevention rules must be strictly observed!

The electronic timers have been manufactured in accordance with the current EC directives.

Installation, start-up and maintenance may only be carried out by authorized qualified personnel.

For installation and operation of the electronic timers the regulations and directions of the local engineering associations (e.g. VDE) and the known accident prevention rules have to be observed.

6.1 Mounting the Electronic Timer

AP 117 electronic timers can be mounted in any position.

The 4 bores (\varnothing 4.25 mm) for attachment of the unit are accessible once the cover has been opened.

Dimensions of the mounting bores: 108 mm \times 127 mm (see Ch. 3 Technical Data).

The mounting surface must be even and level, in order to avoid damaging of the housing.

6.2 Electrical Connection



DANGER

ATTENTION:

The AP 117 must not be mounted or dismounted with voltage applied!

Electrical installation of the AP 117 electronic timer may only be performed by authorized specialists.

The authorized specialists must work only with insulated tools which are suitable for the application.



CAUTION

Only suitable and flexible supply cables should be used for the connection of the electronic timers AP 117. Cables and earthing conductors must be connected according to the respective regulations.

The conductors in the supply cable for connection of the AP 117 to the power supply must be temperature-resistant and have a sufficiently large cross-section matching the used cable length.



DANGER

The electric lines must be carefully routed. It must be ensured that cables cannot be worn through by vibrating components.

It should be checked that the electric lines and their connectors are in perfect working condition at regular intervals (generally every six months).

Any faults which are discovered must be immediately remedied.

Protect cables from high temperatures, lubricants and sharp edges.



CAUTION

At delivery the fuse is located in the socket.

The operating voltage for the electronic timer is also the supply voltage for the device to be controlled (solenoid valve, contactor, vibrator, motor, etc.).

Opening housing cover:



ATTENTION:

The AP 117 cover may only be opened by authorized specialists.



Slide screwdriver into the opening slit and turn.



Flip cover open to the left side.

Connection:

- Open housing cover as described above.
- The electronic timer can now be connected via the terminal strip.

The voltage is supplied via the power connection block 1 and 2 (DC or AC), terminal 3 PE (AC).

The output voltage is applied to the terminals 4 and 5 (AC or DC), terminal 6 PE (AC).

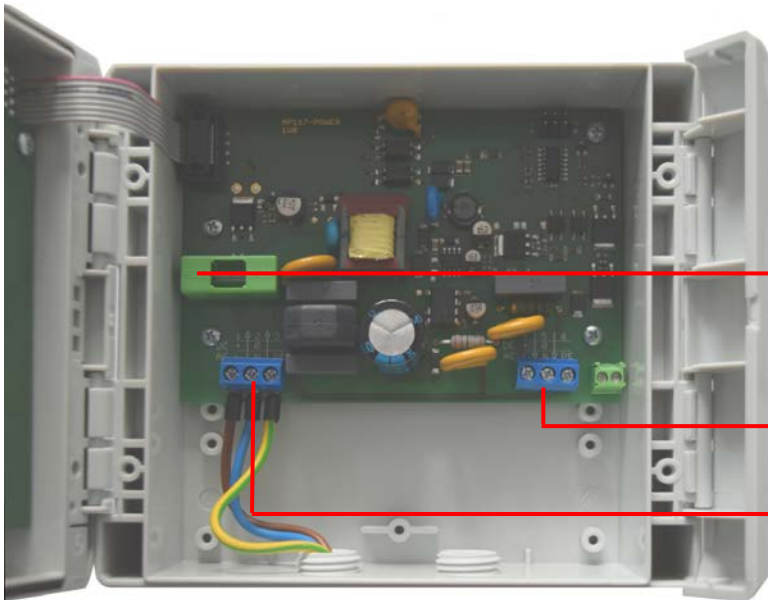
Direct voltage

If direct voltage (DC) is applied to the terminals 1 and 2, direct voltage (DC) is also applied to the terminals 4 and 5.

Alternating voltage

If alternating voltage (AC) is applied to the terminals 1 and 2, alternating voltage (AC) is also applied to the terminals 4 and 5.

If alternating voltage is applied, the protective conductor PE must always be connected (terminals 3 and 6).



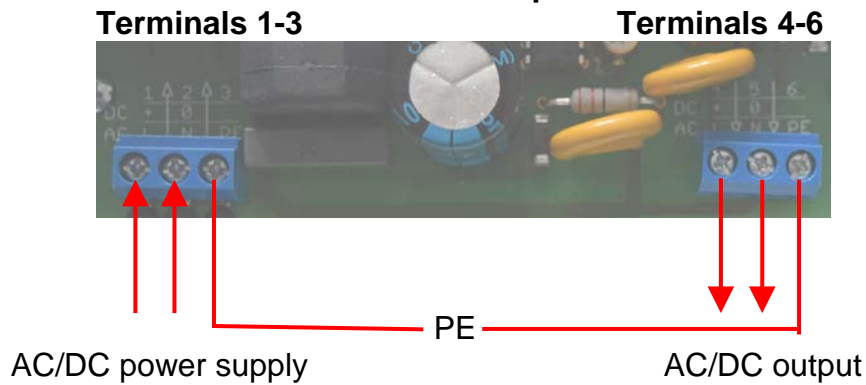
The voltage level of input and output voltage is always the same.

AC/DC fuse
(1.25 A slow blow)

Output strip terminals 4-6
(AC or DC)

Power supply connection strip terminals 1-3 (DC or AC)

Terminal strips



7 Start-up / Operation



In standby mode the red LED flashes. In the adjusting or operating mode the LED lights when active keys are touched.



**DANGER
AUTOMATIC
START**



When switched on the AP 117 starts immediately with the stored time values. The connected devices also start immediately.



The sensor keys react to slight touching, **not** to pressing.



DANGER



**DANGER
AUTOMATIC
START**

If, following a voltage interruption, power is again applied to the power supply connection, the next cycle will always begin with the set duty time.


The output is immediately energized.


Function “standard”

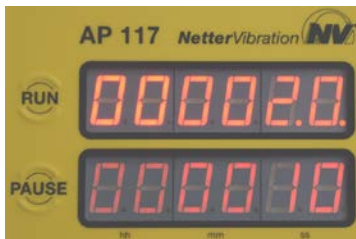





Adjusting the duty time:



- If the timer is switched off, the outputs (terminals 4-5) are de-energized.


- Touch the key  **ON/OFF** until the displays are illuminated. The electronic timer starts immediately with the stored time values.

- Touch the key  until two additional illuminated points appear in the display (adjusting mode). The outputs (terminals 4-5) are de-energized.



- Touch the key  and select the position to be adjusted (seconds, minutes or hours) by actuating  or  (the points will change).


- To increase or decrease the time value actuate  or  (and do not touch RUN).


- If the required duty time has been adjusted, it must be confirmed by touching again the key  (for at least 3 seconds).

- The values are stored when the points have extinguished.
- The outputs (terminals 4-5) are energized while the duty time is running.




Adjusting the pause time:



- If the timer is switched off, the outputs (terminals 4-5) are de-energized.


- Touch the key  **ON/OFF** until the displays are illuminated. The electronic timer starts immediately with the stored time values.

- Touch the key  until two additional illuminated points appear in the display (adjusting mode). The outputs (terminals 4-5) are de-energized.



- Touch the key  and select the position to be adjusted (seconds, minutes or hours) by actuating  or  (the points will change).

- To increase or decrease the time value actuate  or  (and do not touch PAUSE).

- If the required pause time has been adjusted, it must be confirmed by touching again the key  (for at least 3 seconds).



- The values are stored when the points have extinguished.
- The outputs (terminals 4-5) are de-energized while the pause time is running.

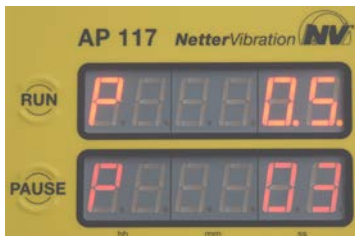
Function “cascade / interval / pulse mode”









The adjustment of the duty and pause time is carried out in the same way as in the function “standard”.



Adjusting the clock duty time:

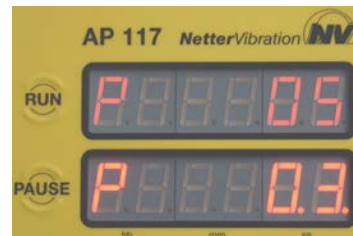
- If the timer is switched off, the outputs (terminals 4-5) are de-energized.
- Touch the key  **ON/OFF** until the displays are illuminated. The electronic timer starts immediately with the stored time values.
- Touch the key  until two additional illuminated points appear in the display (adjusting mode). The cascade adjusting mode is indicated by the “P” preceding the value. The outputs (terminals 4-5) are de-energized.









- Touch the key  and select the position to be adjusted (seconds, minutes or hours) by actuating  or  (the points will change).
- To increase or decrease the time value actuate  or  (do not touch RUN).
- If the required clock duty time has been adjusted, it must be confirmed by touching again the key  (for at least 3 seconds).

Adjusting the clock pause time:

- If the timer is switched off, the outputs (terminals 4-5) are de-energized.
- Touch the key  **ON/OFF** until the displays are illuminated. The electronic timer starts immediately with the stored time values.
- Touch the key  until two additional illuminated points appear in the display (adjusting mode). The cascade adjusting mode is indicated by the “P” preceding the value. The outputs (terminals 4-5) are de-energized.



- Touch the key  and select the position to be adjusted (seconds, minutes or hours) by actuating  or  (the points will change).
- To increase or decrease the time value actuate  or  (do not touch PAUSE).
- If the required clock pause time has been adjusted, it must be confirmed by touching again the key  (for at least 3 seconds).

- The values are stored when the points have extinguished.
- The outputs (terminals 4-5) are energized while the clock duty time is running.
- The values are stored when the points have extinguished.
- The outputs (terminals 4-5) are energized while the clock pause time is running.



IMPORTANT

A cycle has to consist of at least two clock duty times and one clock pause time.



IMPORTANT

The total sum of clock duty times and clock pause times is the duty time. If the clock duty time and the clock pause time are selected in a way that their total sum cannot correspond to the duty time, the duty time is automatically rounded up.

Example:

Clock duty time = 5 sec., Clock pause time = 3 sec., selected duty time = 11 sec.

→ The duty time is rounded up to $5+3+5 = 13$ sec.

8 Maintenance / Service



IMPORTANT

Please observe the safety regulations in chapter 2 when servicing the device.

If the timer is continually subjected to atmospheric influences the seal in the cover and the electric lines should be regularly checked (at least every 6 months) for signs of porosity.

All other parts are maintenance-free.

9 Troubleshooting



DANGER

ATTENTION:

Troubleshooting of AP 117 electronic timers should only be conducted by an authorized specialist.

Fault	Possible causes	Troubleshooting	Remedy
Timer does not start	Phase interruption	Check fuses and connection cables	Replace fuse or connection cable
	Supply voltage too low	Check supply voltage and cables	Use correct supply voltage
	Cable wires have been connected polarity-reversed	Check polarity	Connect cable wires with correct polarity
Timer fails when operating in „RUN“	Voltage drop under load	Check supply connection	Use correct supply voltage

10 Waste disposal

Material specifications:

Electronic timer AP 117	
Polycarbonate	Housing Cover



**ENVIRONMENTALLY
FRIENDLY DISPOSAL**

All devices can be disposed of through Netter GmbH.
The applicable disposal prices are available upon request.

11 Enclosures

Enclosure(s):

Declaration of Conformity



**Additional information available
upon request:
Leaflet No. 35, etc.**