NetterVibration

Operating Instructions for Netter Electronic Timer Type AP 116

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These operating instructions apply to: Type AP 116

Serving industry with vibration

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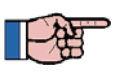
Contents

Scope of Delivery



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.

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 POW-ER SUPPLY**	refers to a possible risk, which, if not avoided, can result in serious injury and/or equipment damage.
	**IMPORTANT**	note with especially useful information and tips.
	**ENVIRONMENTALLY FRIENDLY DISPOSAL**	refers to the obligation of an environmentally friendly disposal.

1 General Information

Netter Type AP 116 electronic timers comply with the directive for electro-magnetic 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.

Electronic timers are used wherever a procedure needs to be time-controlled.
Any other usage is considered to be improper.

AP 116 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 optimised, drive energy can be saved and the noise level lowered.

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
- Direct control

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

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

The electronic timer has no safety devices of its own.

2 Safety

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 AUTOMA-TIC 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.

DISCONNECT POWER SUPPLY

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

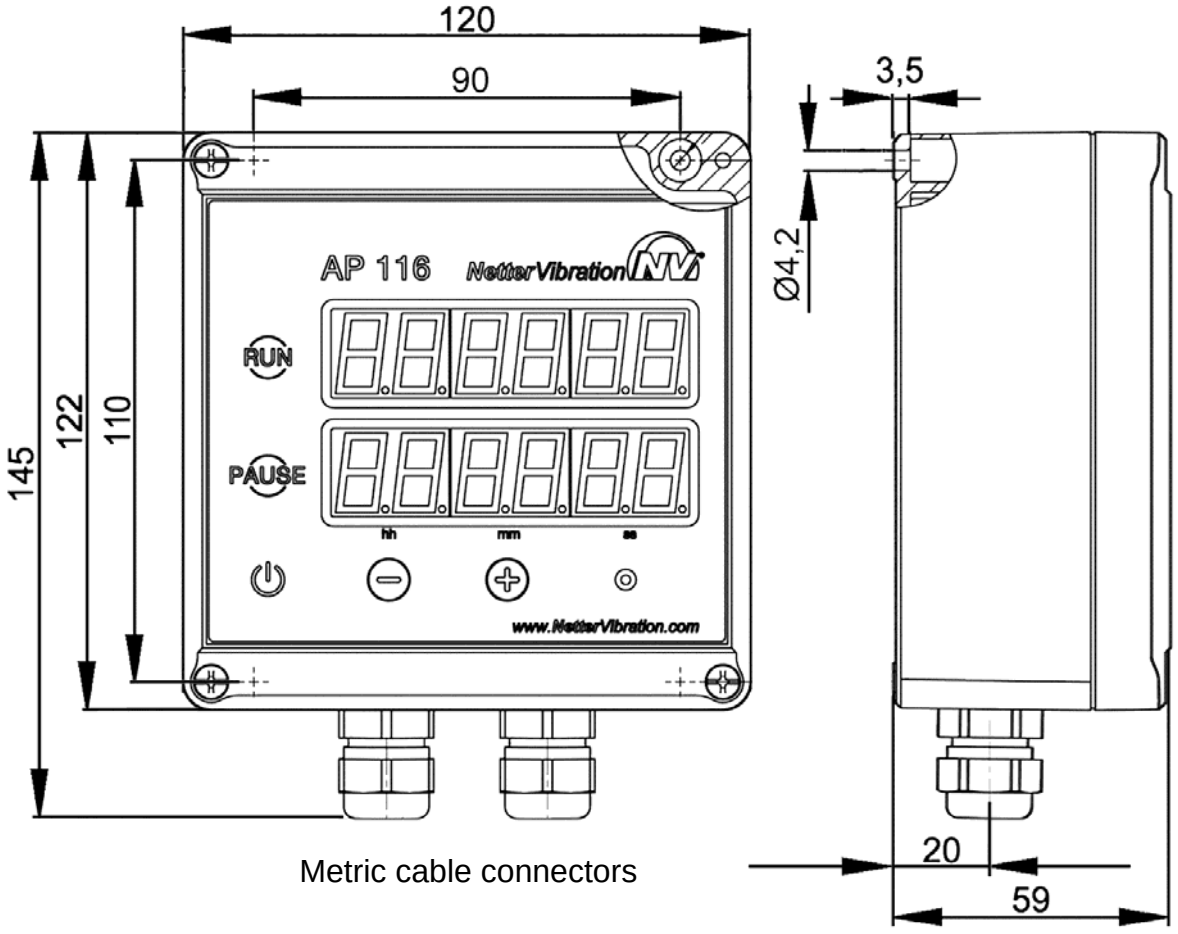
1. Switch off the electronic timer
2. Secure it against switching on
3. Make sure it is de-energized

3 Technical Data

Duty time (RUN):	Exact to the second, up to max. 99h 59min 59s
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

IMPORT-ANT

Dimensions



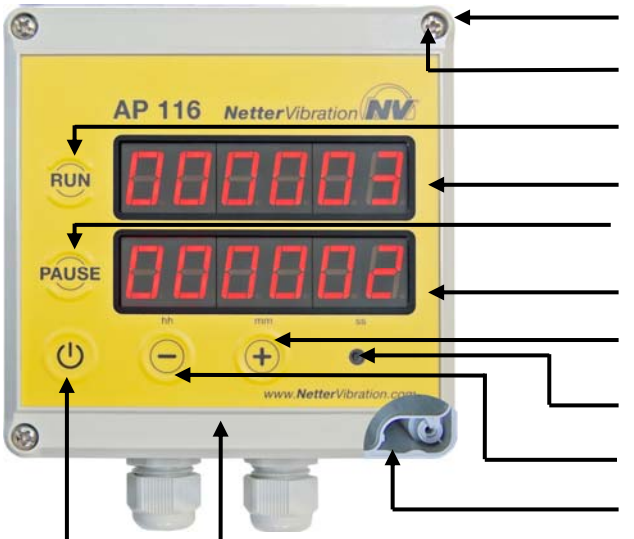
Metric cable connectors

4 Design and Function

The electronic timer consists of two basic components:

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

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 of 1 s to 99 h is running (pause), then the duty time, etc.
The elapsed time is visible on the display. The respective time digits are brightly illuminated when active.



1 Housing
2 Sensor cover attachment
3 **RUN** Duty time adjustment
4 Duty time display
5 **PAUSE** Pause time adjustment
6 Pause time display
7 **+** increases the selected time value
8 LED
9 **-** decreases the selected time value
10 Mounting bores
11 Sensor cover
12 ON / OFF Switch (standby)
no disconnection!

5 Transport and Storage

IMPORT-ANT

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

WARNING

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 authorised 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 116 electronic timers can be mounted in any position.
The 4 bores (Ø4.2 mm) for attachment of the unit are accessible once the cover has been opened.

Dimensions of the mounting bores
90 mm × 110 mm (see chapter 3 Technical data).

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

6.2 Electrical Connection

DANGER

CAUTION:

The AP 116 must not be mounted or dismounted with voltage applied!

Electrical installation of the AP 116 electronic timer may only be performed by an authorized specialist.

The specialist must work only with insulated tools, which are suitable for the application.

CAUTION

Suitable supply cables should be used for the connection of the electronic timers AP 116. Cables and earthing conductors must be connected according to the respective regulations.
The conductors in the supply cable for connection of the AP 116 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).

Connection:

- Unscrew the 4 cross-head screws of the sensor cover.
- Lift off the sensor cover
- 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).

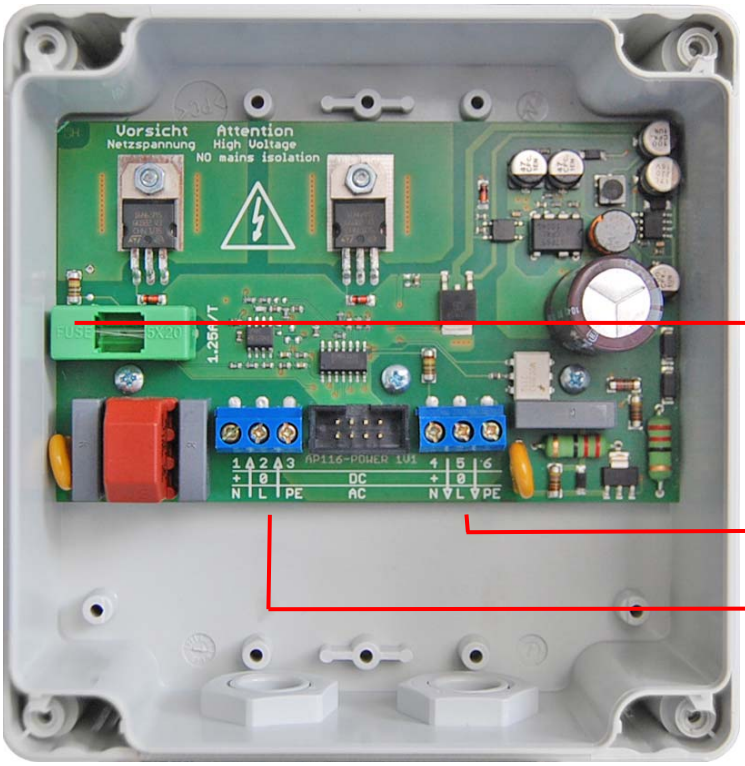
Direct voltage

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.

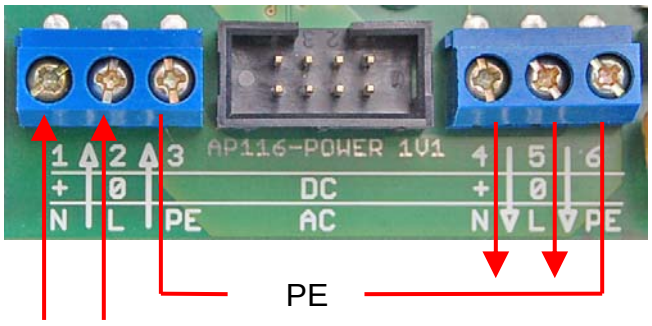
AC/DC fuse
(1.25 A slow blow)

Output strip terminals 4-6 (AC or DC)

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

Terminal strips

Terminals 1-3 **Terminals 4-6**



PE

AC/DC power supply

AC/DC output

7 Start-up / Operation

IMPORT-ANT

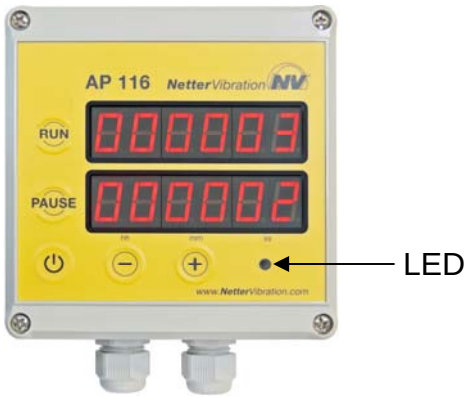
In standby mode the red LED flashes. In the adjusting or operating mode the LED lights up continuously if active keys are touched.

DANGER

When switched on the AP 116 starts immediately with the stored time values. The connected devices also start immediately.

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

In the adjusting mode you can switch between RUN and PAUSE



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 display is illuminated. The electronic timer starts immediately with the stored time values.
- Touch the key RUN until two additional illuminated points appear in the display (adjusting mode). The outputs (terminals 4-5) are de-energized.
- Touch the key RUN 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 RUN (for at least 3 seconds).
- The values are stored when the points extinguish.
- 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 display is illuminated. The timer will start immediately with the stored time values.
- Touch the key PAUSE until two additional illuminated points appear in the display (adjusting mode) The outputs (terminals 4-5) are de-energized.
- Touch the key PAUSE 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 – without touching PAUSE.
- If the required pause time has been adjusted, it must be confirmed by touching again the key PAUSE (for at least 3 seconds).
- The values are stored when the points extinguish.
- The outputs (terminals 4-5) are deenergized while the pause is running.


DANGER

If, following a voltage interruption, power is again applied to the electronic timer AP 116, the next cycle will always begin with the set duty time.
When the timer is switched on, the output is immediately energized.

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 116 electronic timer should only be conducted by an authorized specialist.

Fault	Possible Causes	Troubleshooting	Remedy
Timer doesn't start	Phase interruption	Check fuses and connection cables	Replace fuse or connection cable
	Power supply too low	Check power supply and cables	Apply correct power
	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 power supply connection	Connect power supply correctly

10 Waste disposal

Material specifications:

Electronic timer AP 116	
Polycarbonate	Housing Cover

ENVIRON-MENTALLY 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 and much more.