The electronic digital timer ENS90 combines modern industrial electronics with robust mechanical construction. By use of a tight-fitting keyboard the front of the equipment is protected against splash-water completely. Therefore ENS90 is suitable ideally for the employment at bakery machines, machine tools, manufacturing automats etc..



- *front protection IP65*
- *simple programming by integrated keyboard*
- *6 programmable time ranges 0.01s - 99,9h*
- *all usual functions programmable*
- *quartz-stabilised time base*
- *13mm LED display*
- *Integrated 12VDC power supply for external initiators*
- *START/STOP (gate) and RESET inputs*

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Timing begins with the programmed time value (preselection) and ends at zero (time up). Stop, resetting as well as adjusting new parameters during the timing operation are possible.

Time setting

By pressing the „fast upward“ or „slow downwards“ keys the required timing period can be set. During the time preselection the upper LED „programming“ flashes. Single and continuous pressure are possible. The new preselect value is stored by pressing the „memory“ key, "Reset " cancels without memory.

▶	Fast upward, time setting
◀	Slow downward, time setting
◉	Memory, storing of the new value
R	Reset, cancel without storing

Keyboard function during timing

◉	Announcement of the preselected value; timing continues in the background with all switching functions
R	Reset to zero or to the preselected value

Operating instructions

By operation of the backspace key "**R**" or the RESET-input (2-3) the ENS90 is set to the programmed preselected value in each operating condition. The RESET signal (2-3) and "**R**" - key have priority in relation to the START signal.

Timing begins with turning on of the starting signal (1-3) and can be interrupted by this input as desired. The START (gate) input 1-3 can be closed by a cable link. In this case timing begins directly with switching on of the mains voltage. RESET and START input have an internal noise pulse suppression. They may be activated by contacts or electronic initiators. The 2nd contact (immediate contact) switches with applying of the START signal.

A stabilised voltage of DC12V / 60mA is available on the terminals 3, 4 for the supply of external initiators.

A closed relay contact 15-18 is indicated by the lower LED „time up indication“

Programming

On the back of the equipment are eight selector switches. The following modes of operation can be adjusted in arbitrary combination:

Counting direction (switch 1)

Timing begins with the programmed time value and ends at zero.

Switch 1	Counting direction
ON	upward
OFF	downward

Timing ranges (switches 2,3,4)

2	3	4	Timing range
OFF	OFF	OFF	0,01 - 9,99s
OFF	OFF	ON	0,01 - 9,99s
ON	OFF	OFF	0,1 - 99,9s
OFF	ON	OFF	1 - 999s
ON	OFF	ON	0,1 - 99,9min
OFF	ON	ON	1 - 999min
ON	ON	OFF	0,1 - 99,9h
ON	ON	ON	0,1 - 99,9h

Power failure function (switch 5)

Switch 5	Power failure function
ON	**Continuation.** After power failure timing is continued with the value reached last.
OFF	**Restart.** After power failure timing begins at zero (RESET after power failure).

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Programmable Digital Timer ENS90

Enable/disable programming (switch 6)

Switch 6	Enable/disable function
ON	**Programming disabled during timing.** The programming mode is not possible during timing (i.e. the START signal is turned on). Programming only, if the START input is turned off.
OFF	**Programming enabled during timing.** Programming during timing (i.e. the START signal is turned on) is enabled. Timing is stopped and continued after the recent time preselection at the new values.

Timing functions (switches 7,8)

On-delay

Timing begins with applying of the mains voltage and closing of the START-contact. After timing the contacts switch from 15-16 to 15-18 until the arrival of a resetting signal, at least however for 200ms.

Impulse-limiting

As On-delay, however the contacts are switched on with application of the mains voltage immediately (15-18) and back to 15-16 after timing.

Flashing (T1=T2)

The ENS90 works after applying of the mains voltage and closing of the START contact as symmetrical cycling timer. The cycle starts with output off (relay switched off). On and off time are equal.

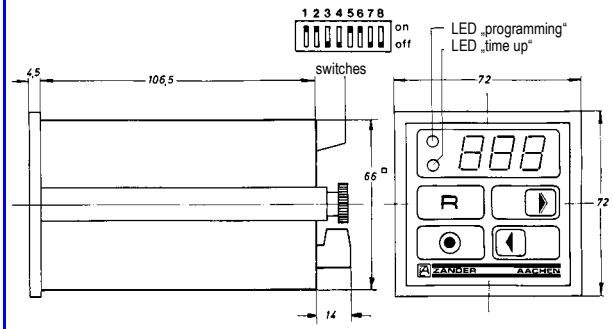
Flashing (T2=100ms)

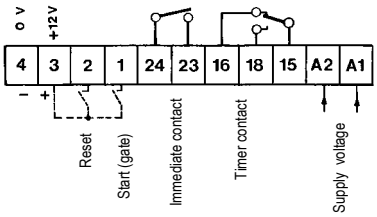
In this operating condition the output relay switches periodically for 200ms. The total cycle time is determined by the preselected current value.

7	8	Timing functions
OFF	OFF	On-delay
OFF	ON	Impulse limiting
ON	OFF	Flashing (T1=T2)
ON	ON	Flashing (T2=200ms)

Specifications	
Operating voltage	DC24V, AC230V/AC115V, 50-60Hz
Voltage tolerance	90..110% of U_N
Power consumption	< 5VA
LED-display	3 digits, 13mm red, LEDs: time up indication and programming mode
Protection	IP65 front
Internal data storage time	10 years
Contacts	1 change-over contact (timer), 1N/O immediate, switches with Start-signal
Contact rating	AC 250V, 8A; DC 24V, 3A
Contact life	mechanically $2x10^7$ operations electrical 10^5 operations
Inputs 2, 3	DC10..30V or external contact
Power supply for ext. initiators	DC12V / 60mA stabilised
Time base	quartz-stabilised, time tolerance: < 0,1%
Min.power-off time	Approx. 200ms
Time ranges	6 between 0.01s and 99,9h
Temperature range	0^0 - + 50^0C
Dielectric strength	4kV DIN VDE 0110-1:1997-04
Weight	approx. 450g

Order-No	Type
523000	ENS90 AC230V
523001	ENS90 AC115V
523002	ENS90 ADC24V





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