

Preset counters, electronic

LCD preset counters	1 preset – pulse, time (battery)	901
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Type 901 is a simple battery-powered preset pulse counter/timer with 12 ... 250 V AC/DC count and reset inputs or with NPN input. The 6-digit, 2-line LCD display shows the current count value, the preset value, the relay state and the active time measurement.



Powerful

- Count and reset input electrically separated from the counter: input switching levels 12 ... 250 V AC/DC or NPN input signal.
- 2-line LCD display for count and preset. Displays the switching status of the output and the active time measurement.
- Data retention thanks to exchangeable lithium batteries, battery life approx. 8 years.
- Output: relay, programmable as normally open or normally closed.

Simple

- Easy to programme.
- Simple preset entry; one key per decade.
- Plug-in screw terminals.
- Replacement for electromechanical preset counters.
- No external supply voltage necessary.
- Clock function.

Order no.

Type of input

12 ... 250 V AC/DC

NPN input

Order no.

6.901.010.820

6.901.010.850

Delivery specification

- Counter 901
- 2 lithium batteries
- 1 screw terminal
- 1 mounting clip
- 1 operating instructions
- 1 front bezel for screw mounting, panel cut-out 50 x 50 mm [1.97 x 1.97"], T008860
- 1 front bezel for spring clip mount, panel cut-out 50 x 50 mm [1.97 x 1.97"], T008853
- 1 template for panel cut-out

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Accessories / Mounting examples

Sealing cover

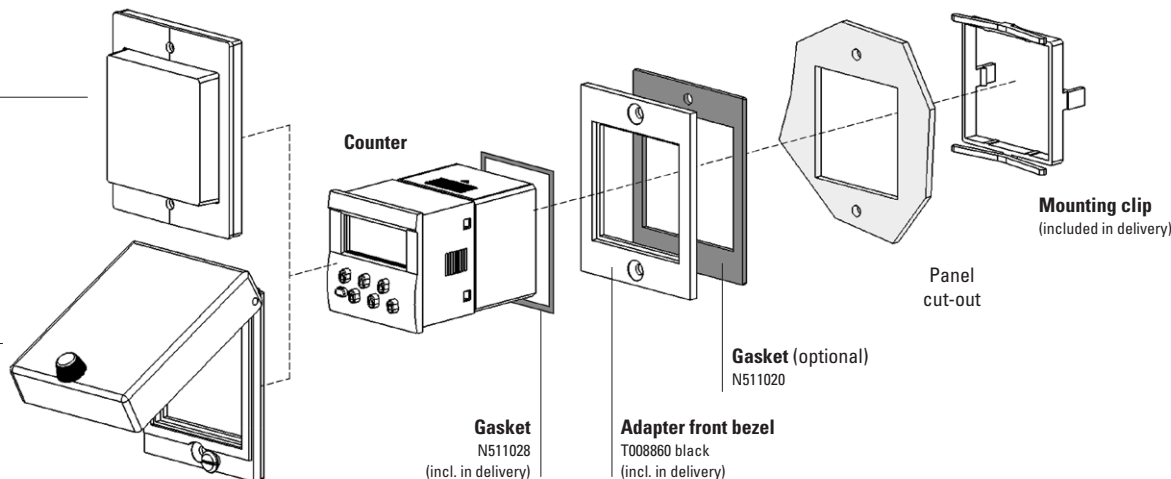
G008302 grey
G008303 black

alternatively

only in conjunction with
adapter front bezel
60 x 75 mm T008860

Transparent cover

G008143 lockable
G008153 key lockable



		Type / size	Description		Order no.	suitable gasket
Adapter front bezel		55 x 55 mm [2.17 x 2.17]	for cut-out 50 x 50 mm [1.97 x 1.97"] or ø 50,5 mm [1.99"] to cut-out 45 x 45 mm [1.77 x 1.77"]	grey black	T008170 T008171	N511017
		55 x 55 mm [2.17 x 2.17]	for cut-out 50 x 50 mm [1.97 x 1.97"] to cut-out 45 x 45 mm [1.77 x 1.77"]	black	T008853	N511004
		60 x 75 mm [2.36 x 2.95]	for cut-out 50 x 50 mm [1.97 x 1.97"] to cut-out 45 x 45 mm [1.77 x 1.77"]	black	T008860	N511020
		72 x 72 mm [2.83 x 2.83]	for cut-out 68 x 68 mm [2.68 x 2.68"] to cut-out 45 x 45 mm [1.77 x 1.77"]	grey black Mating clip	T008176 T008177 T009420	N511016
		ø 72 mm [2.83]	for cut-out ø 60 mm [2.36"] to cut-out 45 x 45 mm [1.77 x 1.77"]	black	N510226	–
Sealing cover IP65		K2	only in conjunction with adapter front bezel 60 x 75 mm T008860	transparent / grey transparent / black	G008302 G008303	–
Transparent cover IP65		2 Dv (mounted on bezel)	cover lockable, for cut-out 50 x 50 [1.97 x 1.97], only in conjunction with adapter front bezel 60 x 75 mm T008860	transparent / black	G008143	–
		2 Dvs (mounted on bezel)	cover key lockable, for cut-out 50 x 50 [1.97 x 1.97], only in conjunction with adapter front bezel 60 x 75 mm T008860	transparent / black	G008153	–
Gasket counter			48 x 48 mm (for installation in adapter front bezel) 49 x 49 mm		N511028 N511033	
Mounting frame		cut-out 50 x 50 mm [2.36 x 2.36]	for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	G300003	
Screw terminal (replacement part)			1 ... 7, pitch 5,08	7-pin	N100548	

incl. in delivery

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Technical data

General technical data

Display	2 line LCD display, 6 digits 999999; 7 or 4.5 mm [0.28 or 0.18"] high
Operating temperature	-20 °C ... +65 °C [-4 °F ... +149 °F] (non-condensing)
Storage temperature	-25 °C ... +70 °C [-13 °F ... +158 °F]
Relative humidity	< 85 % (non-condensing)
Altitude	up to 2000 m [6562']

Electrical characteristics

Supply voltage	2 pcs user exchangeable lithium- batteries type 1/2 AA lithium 3.6 V
Data retention	min. 8 years at 5 x 10 ⁶ power operations of the output relay and an operating temperature of 25 °C [+104 °F]
Device safety	designed to protection class application area EN 61010-1, EN 61010-2-201 2 (front side) pollution level 2

Mechanical characteristics

Protection	IP65 (front side)
Weight	approx. 80 g

Outputs

Output	bistable relay with potential free contact (programmable as normally closed or normally opened contact)
Max. switching voltage	250 V AC / 30 V DC
Max. switching current	2 A
Max. switching capacity	60 VA / 30 W
Output response time	< 20 ms, max. 4 Hz
Insulation coordination	basic insulation

Inputs

Inputs	reset, count and key lock inputs
Polarity of the inputs (for reset and count/start input)	12 ... 250 V AC/DC NPN bidirectional optocoupler input NPN input activated by transistor or contact
Keyboard lock input	connected to +3 V DC (terminal 1)
Min. pulse duration of the inputs	reset input 50 ms keyboard lock input 15 ms
Switching levels of the inputs	12 ... 250 V AC/DC NPN LOW: < 1 V AC/DC HIGH: 12 ... 250 V AC/DC LOW: 0 ... 0.8 V DC HIGH: 2.5 ... 5 V DC
Input frequency	max. 30 Hz
Input resistance	110 kΩ

Approvals

UL compliant in accordance with	File no. E128604
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU
Low Voltage Directive	2014/35/EU

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Programming

The counter is programmed using the keys on the front. The user is guided by plain text on the display.

The following modes are programmable:

1. Function: pulse preset counter or preset timer
2. Count mode (adding or subtracting)
3. Output: permanent signal or timed signal in case of automatic repetition (loop)
4. Output (normally open or normally closed)
5. Timed signal duration (Delay) in case of automatic repetition
0.1 ... 99.9 seconds
6. Decimal point up to max. 5 decimal places (pulse counter)
or up to max. 2 decimal places (preset timer)
7. Time range for the preset timer: seconds minutes, hours

Function of the output

- Adding:
Relay is active, when actual value \geq preset
- Subtracting:
Relay is active, when actual value ≤ 0

In case of automatic repetition, the output signal is a timed signal programmable in 100 ms steps from 0.1 to 99.9 seconds.

A colon is displayed on the lower display line when the relay is activated.

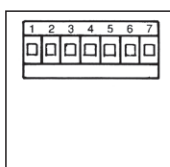
An indicator flashes at one-second intervals when timing is active.

Operating the counter

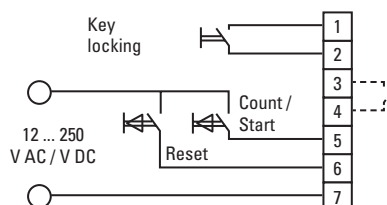
- Setting or resetting:
Press the red SET button or apply a pulse to the reset input to set the counter to zero in the adding mode or to the preset in the subtracting mode.
- Presetting:
The preset value is indicated on the lower row of digits. To set it, use the 6 presetting buttons assigned to each decade. The set value will be accepted with the next set or reset operation.
- Overflow and underflow:
In the adding mode the overflow is 999 999 to 0; in the subtracting mode it is 0 to 999 999. The output signal remains unaffected.
- Lo-bat-indicator:
When the battery charge is too low, Lo-bat appears in the lower display. This flashes on a two second cycle. When lo-bat is indicated, the battery should be changed as soon as possible. If the charge goes on decreasing, the device switches to (noFunc) "no function" mode and must be reprogrammed.
- Changing the battery:
The unit retains the programmed values if the batteries are replaced within 2 minutes. Otherwise, the device must be re-parameterized.
- Counting:
By means of positive pulses (12 ... 250 VAC) or by a NPN input pulse. Time counting remains active as long as the counter input is active (preset timer).

Terminal assignment 12 ... 250 V AC/DC

Pin	Inputs / outputs
1	+3 V DC for terminal 2
2	Keyboard lock-input
3	Relay contact
4	Relay contact
5	AC/DC optocoupler count input
6	AC/DC optocoupler reset input
7	Common AC/DC input for terminal 6 and 5

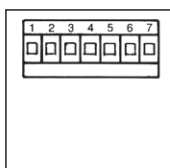


Example of connection 12 ... 250 V AC/DC

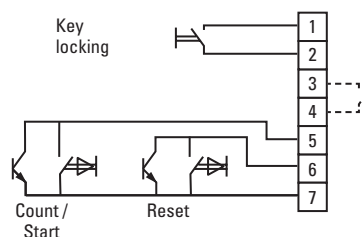


Terminal assignment NPN

Pin	Inputs / outputs
1	+3 V DC for terminal 2
2	Keyboard lock-input
3	Relay contact
4	Relay contact
5	NPN count/start input
6	NPN reset input
7	Common AC/DC input for terminal 6 and 5



Example of connection NPN



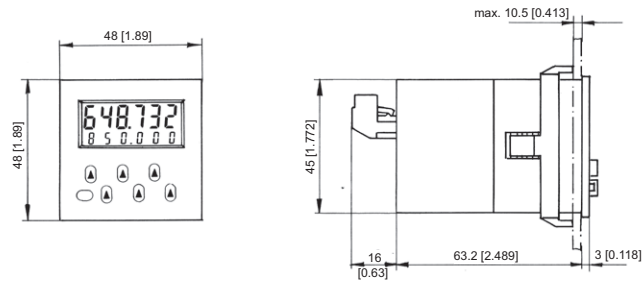
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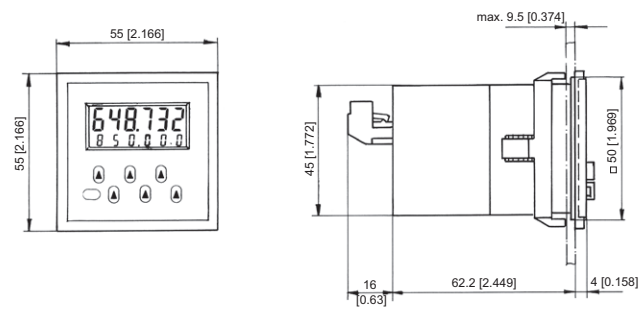
Dimensions

Dimensions in mm [inch]

Panel cut-out 45 x 45 [1.77 x 1.77]



With front bezel 55 x 55 [2.17 x 2.17], panel cut-out 50 x 50 [1.97 x 1.97]



With front bezel 60 x 75 [2.36 x 2.95], panel cut-out 50 x 50 [1.97 x 1.97]

