

# Preset counters, electronic

**LCD preset counters**      **1 preset – pulse, time (battery)**      **901**



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.



Battery powered	Sensor supply voltage <b>12 ... 250 V</b>	Max. count frequency <b>30 Hz</b>	Temperature range <b>-20° ... +65°C</b>	High protection level <b>IP65</b>	DIN front bezel <b>DIN 48 x 48</b>	Multifunctional	Plug-in screw terminal	Menu-driven programming	Decade key entry	Relay output <b>1</b>

### 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**

Stock types

**6.901.010.820**

**6.901.010.850**

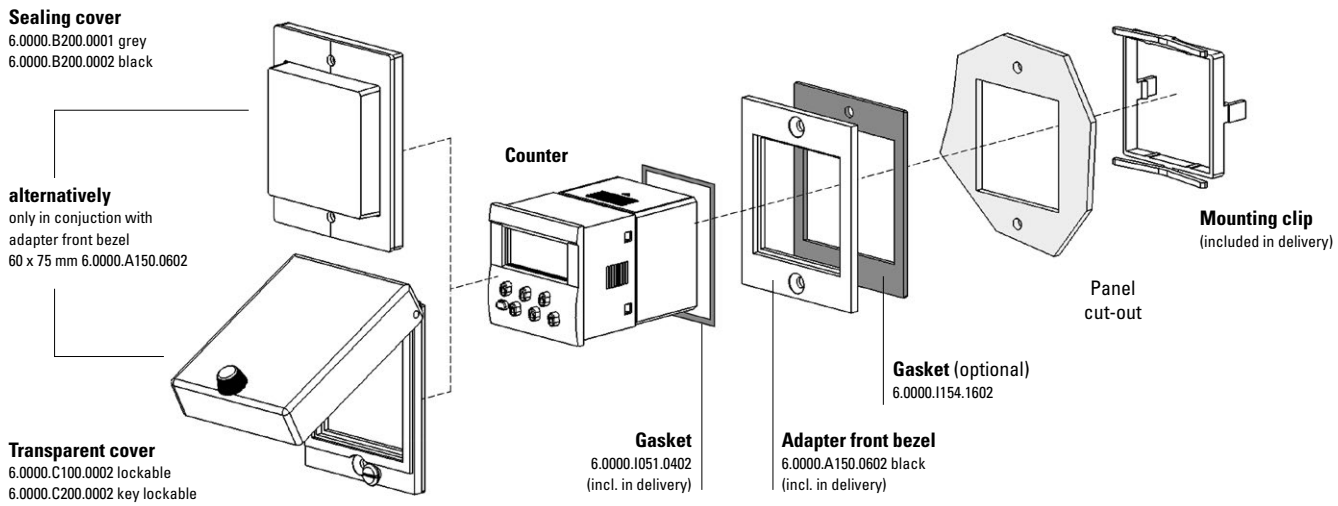
Delivery specification

- 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"], 6.0000.A150.0602
- 1 front bezel for spring clip mount, panel cut-out 50 x 50 mm [1.97 x 1.97"], 6.0000.A100.0602
- 1 template for panel cut-out

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**Accessories / Mounting examples**



		Type / size	Description		Order no.	suitable gasket
<b>Adapter front bezel</b>		<b>55 x 55 mm</b> <b>[2.17 x 2.17]</b>	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	<b>6.0000.A100.1601</b> <b>6.0000.A100.1602</b>	<b>6.0000.I104.1402</b>
		<b>55 x 55 mm</b> <b>[2.17 x 2.17]</b>	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	<b>6.0000.A100.0602</b>	<b>6.0000.I133.0802</b>
		<b>60 x 75 mm</b> <b>[2.36 x 2.95]</b>	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	<b>6.0000.A150.0602</b>	<b>6.0000.I154.1602</b>
		<b>72 x 72 mm</b> <b>[2.83 x 2.83]</b>	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	<b>6.0000.A160.1901</b> <b>6.0000.A160.1902</b> <b>6.0000.S100.0002</b>	<b>6.0000.I164.1402</b>
		<b>ø 72 mm</b> <b>[2.83]</b>	for cut-out ø 60 mm [2.36"] to cut-out 45 x 45 mm [1.77 x 1.77"]	black	<b>6.0000.A220.2002</b>	—
<b>Sealing cover IP65</b>		<b>K2</b>	only in conjunction with adapter front bezel 60 x 75 mm 6.0000.A150.0602	transparent / grey	<b>6.0000.B200.0001</b>	—
				transparent / black	<b>6.0000.B200.0002</b>	—
<b>Transparent cover IP65</b>		<b>2 Dv</b> (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 6.0000.A150.0602	transparent / black	<b>6.0000.C100.0002</b>	—
				transparent / black	<b>6.0000.C200.0002</b>	—
<b>Gasket counter</b>			48 x 48 mm (for installation in adapter front bezel) 49 x 49 mm		<b>6.0000.I051.0402</b>	
					<b>6.0000.I073.0402</b>	
<b>Mounting frame</b>		<b>cut-out</b> <b>50 x 50 mm</b> <b>[2.36 x 2.36]</b>	for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	<b>6.0000.F200.0006</b>	
<b>Screw terminal (replacement part)</b>			1 ... 7, pitch 5,08	7-pin	<b>6.0000.S160.0009</b>	

incl. in delivery

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## Technical data

### General technical data

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

### Electrical characteristics

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

### Mechanical characteristics

<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 80 g

### Outputs

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

### Inputs

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

### Approvals

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

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## LCD preset counters

## 1 preset – pulse, time (battery)

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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  $\leq$  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.

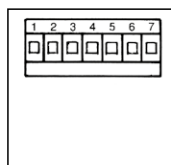
An indicator flashes at one-second intervals when timing is active.

### Operating the counter

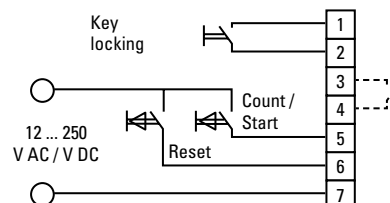
- Setting or resetting:  
Press the red SET button or apply a pulse to the reset input to set the counter to zero in the adding mode or to the preset in the subtracting mode.
- Presetting:  
The preset value is indicated on the lower row of digits. To set it, use the 6 presetting buttons assigned to 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

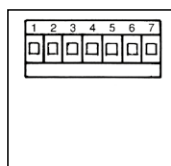


### Example of connection 12 ... 250 V AC/DC

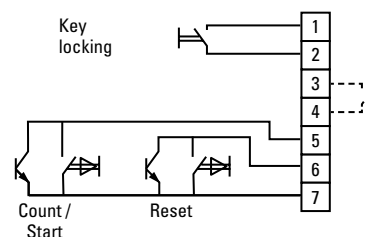


### Terminal assignment NPN

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



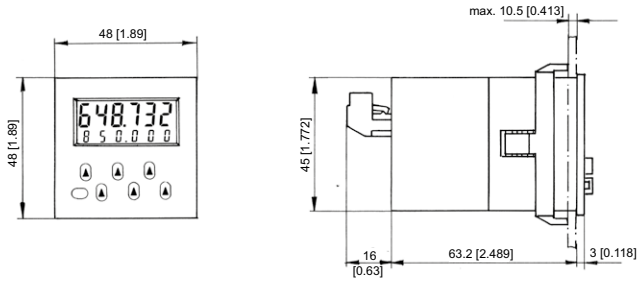
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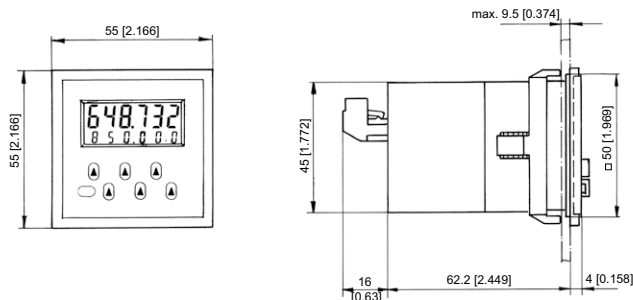
## Dimensions

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]

