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 power supply | Max. count frequency | Temperature range | High protection level | DIN front bezel | Multifunctional | Plug-in screw terminal | Menu-driven programming | Decade key entry | Relay output

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 power supply necessary.
- Clock function.

Order no.

Type of input	*Order no.*
12 ... 250 V AC/DC	**6.901.010.820** [1]
NPN input	**6.901.010.850** [1]

Delivery specification

- Counter 901
- 2 lithium batteries
- 1 screw terminal
- 1 spring 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

1) Stock types.

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Preset counters, electronic

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Accessories	Dimensions in mm [inch]		Order no.
Adapter front bezel, 72 x 72 [2.83 x 2.83]	for cut-out 68 x 68 [2.68 x 2.68] to cut-out 45 x 45 [1.77 x 1.77] (mating clip T009420 must be ordered separately)	black mating clip	**T008177** **T009420**
Adapter front bezel, ø 72 [2.83]	for cut-out ø 60 [2.36] to cut-out 45 x 45 [1.77 x 1.77] with clip mounting for counters 48 x 48 [1.89 x 1.89]	black	**N510226**
Transparent cover, IP65	for cut-out 50 x 50 [1.97 x 1.97], with screw mounting for counters with cut-out 45 x 45 [1.77 x 1.77] and front bezel 48 x 48 [1.89 x 1.89]	lockable key lockable	**G008143** **G008153**
Sealing cover type K2, IP65	suitable for front bezel 75 x 60 [2.95 x 2.36] with screw mounting	transparent/black	**G008303**
Mounting frame with cut-out 50 x 50 [2.36 x 2.36] via separate adapter also for 45 x 45 [1.77 x 1.77]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 48 x 48 [1.89 x 1.89], 53 x 53 [2.09 x 2.09] and 55 x 55 [2.17 x 2.17]	chromated	**G300003**
Gaskets	60 x 75 [2.36 x 2.95] for cut-out 50 x 50 [1.97 x 1.97] 58 x 58 [2.28 x 2.28] for cut-out 50 x 50 [1.97 x 1.97]		**N511020** **N511004**

Replacement parts		Order no.
7-pin connector	1 ... 7, pitch 5.08	**N100548**

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter Accessories or in the Accessories section under: www.kuebler.com/accessories.

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]
Altitude	up to 2000 m [6562']

Electrical characteristics

Power supply		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]
EMC standards		EN 55011 class B EN 61000-6-2, EN 61000-6-3, EN 61326-1
Device safety	designed to protection class application area	EN 61010-1, EN 61010-2-201 2 (front side) pollution level 2
UL approval		file E128604

Mechanical characteristics

Protection	IP65 (front side)
Weight	approx. 80 g

Inputs

Inputs		reset, count and key lock inputs
Polarity of the inputs (for reset and count/start input)		
	12 ... 250 V AC/DC	bidirectional optocoupler input
	NPN	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	LOW: < 1 V AC/DC
		HIGH: 12 ... 250 V AC/DC
	NPN	LOW: 0 ... 0.8 V DC
		HIGH: 2.5 ... 5 V DC
Input frequency		max. 30 Hz
Input resistance		110 kΩ

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

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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 ≥ 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.

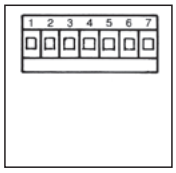
An indicator flashes at one-second intervals when timing is active.

Operating the counter

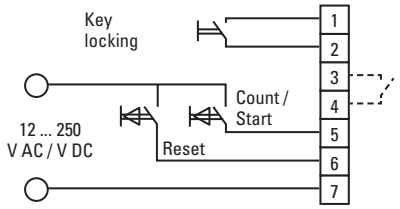
- Setting or resetting:
  Press the red SET button or apply a pulse to the reset input to set the counter to zero in the adding mode or to the preset in the subtracting mode.
- Presetting:
  The preset value is indicated on the lower row of digits. To set it, use the 6 presetting buttons assigned to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

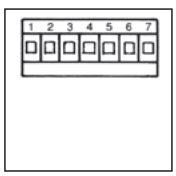


Example of connection 12 ... 250 V AC/DC

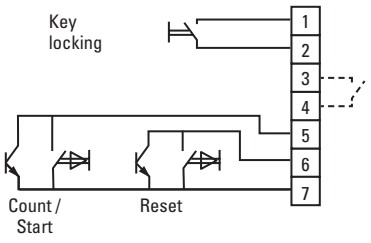


Terminal assignment NPN

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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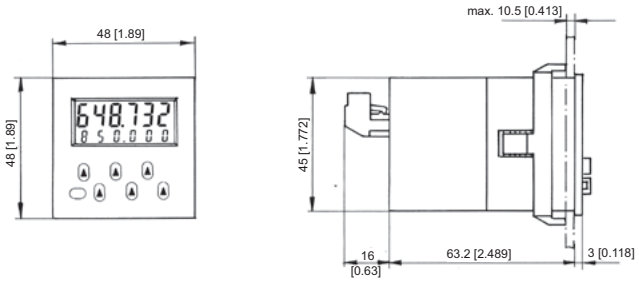
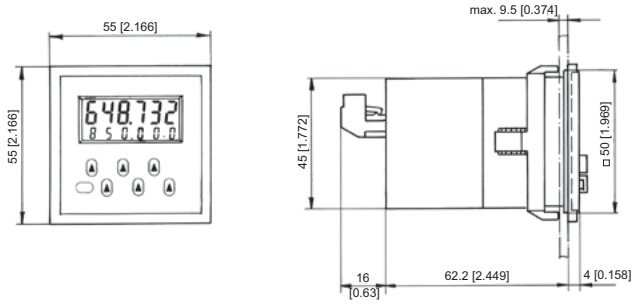
Dimensions

Dimensions in mm [inch]

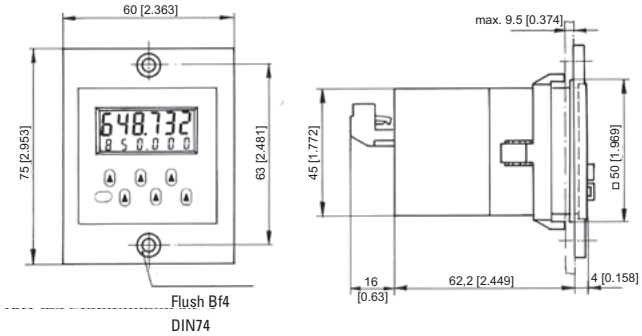
Panel cut-out 45 x 45 [1.77 x 1.77]



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]



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