

Type 903/904



Your benefit

- 2 line LCD display
- Programmable as impulse counter, frequency meter or time meter with sign and zero blanking
- Power supply
90 ... 260 V AC or 10 ... 30 V DC
- approval
- Batch mode

Further product features

- Display range -199 999 ... 999 999 with zero blanking
 - Easy to operate and set the preset values via 4 keys
 - Relay or optocoupler-output
 - Scaling factor 0.0001 ... 9.9999
- 903:** 1 preset value, 1 output
904: 2 preset values, 2 outputs

Technical data:

Supply voltage:	10 ... 30 V DC, max. 1,1 W with reverse polarity protection. 90 ... 260 V AC max. 4 VA	or npn optocoupler:	with open collector and emitter switching power 30 V DC/15 mA
Display:	2 line LCD display, 6-digits	Output 2 Relay:	with potential free contact, programmable as normally open or normally closed. switching voltage max. 250 V AC/125 V DC, switching current max. 3 A switching current at DC min. 30 mA switching power at DC 90 W at AC max. 750 VA
Count inputs:	2 count inputs, 4 input modes are programmable	or npn optocoupler:	with open collector and emitter switching power 30 V DC/15 mA
Polarity of the inputs:	programmable for all inputs in common	Reaction time of the outputs:	relay: approx. 7 ms optocoupler: approx. 1 ms
Input resistance:	approx. 10 kΩ	Data retention:	min. 10 years or 1x10 ⁶ memory cycles
Count frequency:	via DIL switches for INP A and INP B can be set separately 30 kHz 10 kHz for input modes E3 and E4 (quadrature) for automatic repeat - 900 Hz without losing counts (500 Hz for input mode E4)	Transmitter voltage:	24 V DC -40 %/+15 %, 100 mA at 90 .. 260 V AC with optional backlighting: 24 V DC -40 %/+15 %, 60mA at 90 ... 260 V AC
Min. pulse duration of the inputs:	5 ms	Ambient temperature:	0... +50 °C [32 ...122 °F]
Input sensitivity:	DC supply voltages: Low: 0 ... 0.2 x U _B [V DC] High: 0.6 x U _B ... 30 [V DC] AC supply voltages: Low 0 ... 4 V DC High 12 ... 30 V DC	Storage temperature:	-25 ... +70 °C [-13 ... 158 °F]
Pulse shape:	variable (Schmitt-Trigger characteristics)	EMC:	according to EC EMC directive 89/36/EWG
Output 1 Relay:	with potential free contact, programmable as normally opened or normally closed. switching voltage max. 250 V AC/125 V DC, switching current max. 3 A. switching current at DC min. 30 mA switching power at DC 90 W at AC max. 750 VA	Emitted interference:	EN 61 000-6-4/EN 55011 class B
		Immunity to interference:	EN 61 000-6-2
		UL:	File E128604
		Protection:	IP 65 front side EX version IP 54
		Weight:	approx. 240 g [8.466 oz], AC version with relay

Inputs:

INP A, INP B

Count inputs: the max. count frequency of 10kHz can be damped for each channel to 30 Hz.

Gate

Static gate input; no counting while this input is activated

Reset

Dynamic reset input; it is connected in parallel to the red reset key and sets the counter to zero (adding mode) or to the preset value (subtracting mode)

Key

Static keyboard lock input; while this input is activated, the front keys are locked for operations

Outputs:

2 potential free outputs (903: 1 output), versions with relay or optocoupler available

Programming:

The types 903 and 904 are programmed via only 4 keys on the front side. Trouble-free and intuitive operation through clear text user guidance on the display. The operating parameters are chosen from a menu. The device can be used as:

1. Pulse counter
2. Frequency meter
3. Time meter

Therefore the following functions are programmable:

Polarity of the inputs:

Positive (pnp) or negative (nnp) polarity of the inputs. The selected polarity applies to all inputs.

Operating modes, impulse counter and timer:

- adding, starting at zero
- subtracting, starting at the preset value (903) or at preset value 2 (904)
- adding with automatic reset to zero at preset value (903) or preset value 2 (904)
- subtracting with automatic reset to preset value (903) or preset value (904) at zero.

Input modes, impulse counter and frequency meter:

- E1 1 count input, 1 count direction input
- E2 1 Count input up
1 Count input down
- E3 Quadrature input
to connect encoders with 2 signals shifted by 90°

- E4 Quadrature input with pulse doubling
to connect encoders with 2 signals shifted by 90°

Decimal places:

The display is possible with two or three decimal places

Scaling factor:

For optimizing the operation with an encoder a scaling factor of 0.0001 ... 9.9999 may be programmed

Output signal:

Selectable as NO contact or NC contact, positive or negative timed signal (duration 0.01 ... 99.99 s)

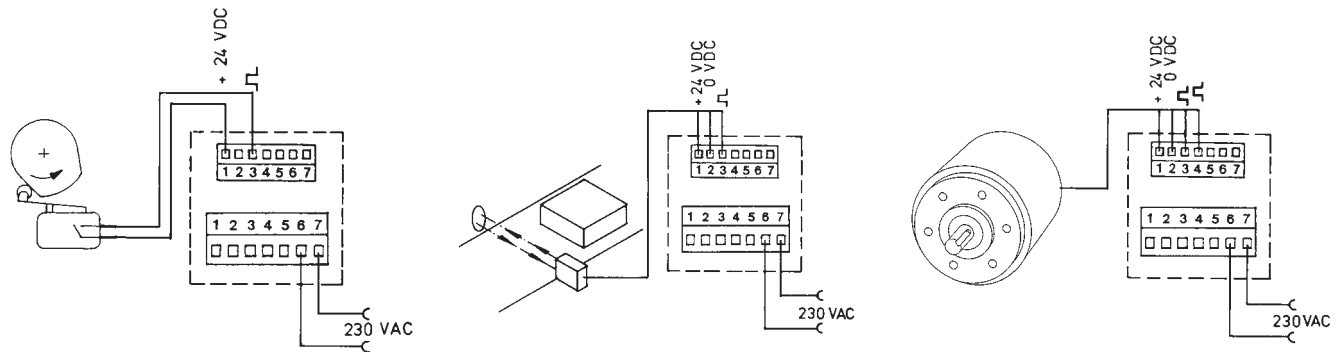
Gate time for frequency meter:

Selectable from 0.01 ... 99.99 s

Hour meter:

Timing in h, min or s, with a resolution of 0.001, 0.01, 0.1 or h:min:s

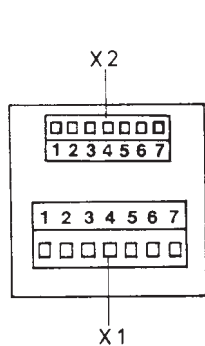
Applications:



control via light barrier

control via encoder

Connection diagram 904:



Pin connection X1:

Pin	AC version	DC version
1	Output 1 Relay collector at optocoupler output	
2	Output 1 Relay emitter at optocoupler output	
3	Output 2 Relay common contact (c) emitter at optocoupler output	
4	Output 2 Relay normally open (NO)	
5	Output 2 Relay normally closed (NC) collector at optocoupler output	
6	Supply voltage	
7	90 ... 260 V AC	11 ... 30 V DC
	90 ... 260 V AC	0 V DC (GND)

Pin connection X2:

Pin	Description	AC version	DC version
1	+24 V DC	Transmitter voltage supply	n.c.
2	0 V DC (GND)	GND	n.c.
3	INP A	Count input A	
4	INP B	Count input B	
5	Reset	Reset input	
6	Gate	Gate input	
7	Key	Key locking input	

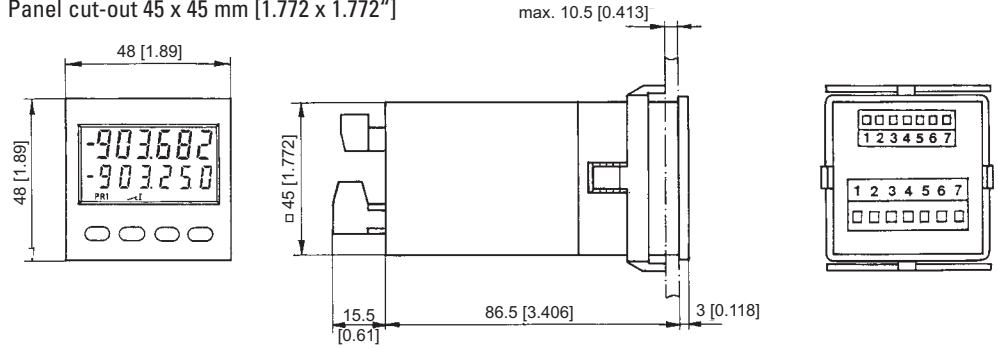
Preset counter electrical



Dimensions:

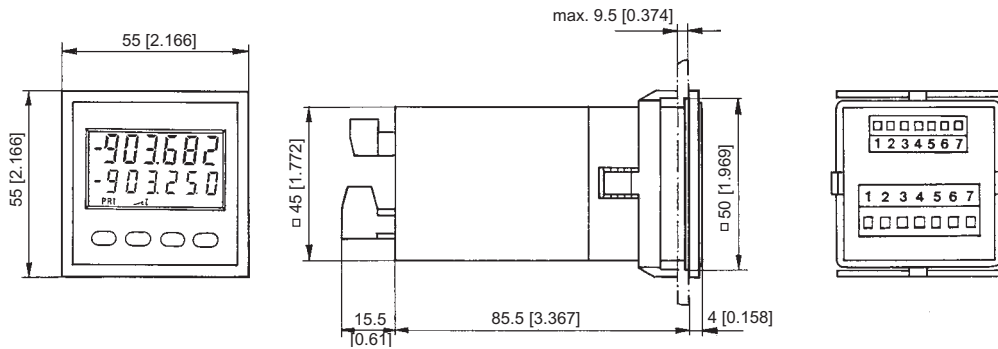
903/904

Panel cut-out 45 x 45 mm [1.772 x 1.772"]



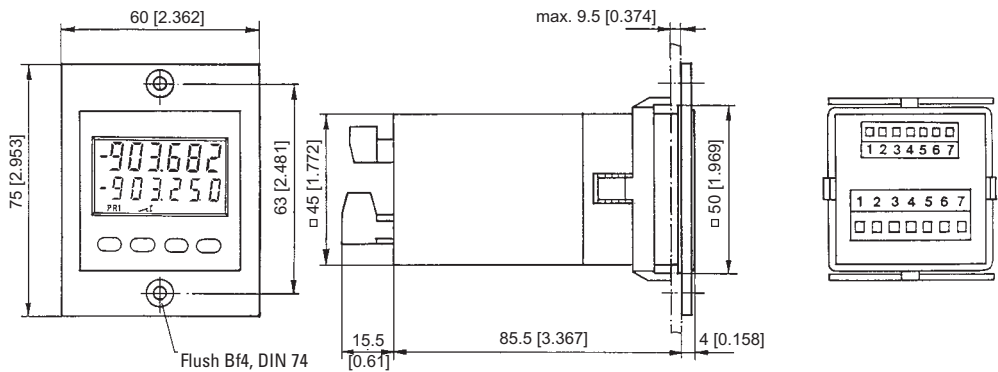
903/904 with front bezel no 2

Panel cut-out 50 x 50 mm [1.969 x 1.969"]



903/904 with front bezel no. 3

Panel cut-out 50 x 50 mm [1.969 x 1.969"]



Delivery specification:

- Counter
- 2 Lithium batteries
- 1 Screw terminal
- 1 Front bezel for screw mounting
Panel cut-out 50 x 50 mm [1.969 x 1.969"]

- 1 Front bezel for spring clip mount
Panel cut-out 50 x 50 mm [1.969 x 1.969"]
- 1 Spring clip
- 1 Template for panel cut-out
- 1 Operating instruction

Order code:

6.90X.01X.XXX

