

# Counters

## 48x48 digital preset counter

### Type FKCO1

CARLO GAVAZZI



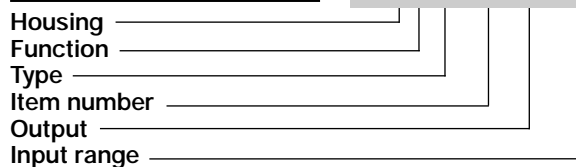
- 6-digit preset counter (adding / subtracting)
- 2-line LCD display with indicators for activated output and current preset value
- Count and preset range from -999999 to 999999
- Programmable to operate as:
  - pulse counter
  - frequency meter
  - time meter
- Displays text prompts to guide the user while programming
- 2 count inputs: PNP or NPN, selectable
- Gate, Reset and Key inputs
- Maximum count frequency 30Hz or 10kHz selectable
- Programming of count functions/operating parameters via front keys
- Output: 3 A SPDT relay
- Power supply: 100 to 240 VAC

### Product Description

48 x 48 mm preset digital counter for flush mounting with 2 lines LCD display, programmable as impulse counter (with sign), frequency meter or time meter. SPDT output relay, NPN or PNP inputs.

### Ordering Key

**FKC 01 C 924**



### Type Selection

Mounting	Output	Input	Housing	Supply: 100 to 240 VAC
Front panel	SPDT	NPN or PNP	48 x 48 mm	FKC 01 C 924

### Input Specifications

<b>Count inputs</b> INP A - INP B	
Input type	NPN or PNP open collector
Low level	0 to 4 VDC
High level	12 to 30 VDC
Max counting frequency	10 kHz
<b>Static gate input</b> GATE	
Input type	NPN or PNP open collector
Low level	0 to 4 VDC
High level	12 to 30 VDC
<b>Dynamic reset input</b> RESET	
Input type	NPN or PNP open collector
Low level	0 to 4 VDC
High level	12 to 30 VDC
<b>Static keyboard lock input</b> KEY	
Input type	NPN or PNP open collector
Low level	0 to 4 VDC
High level	12 to 30 VDC
<b>PNP/NPN sensor supply output</b>	24 VDC -40% +15% 100 mA (unstabilized)
<b>Polarity of the inputs</b>	Programmable for all inputs together
<b>Pulse shape</b>	Variable (Schmitt-trigger character.)
<b>Input resistance</b>	Approx. 10 kΩ

### Output Specifications

<b>Output</b> Rated insulation voltage	SPDT relay 250 VAC
<b>Contact ratings (AgCdO)</b>	μ
Resistive loads	AC 1 3 A @ 250 VAC DC 12 2 A @ 24 VDC
Small inductive loads	AC 15 2.5 A @ 250 VAC DC 13 2 A @ 24 VDC
<b>Mechanical life</b>	≥ 2 x 10 <sup>6</sup> operations
<b>Electrical life</b>	≥ 5 x 10 <sup>5</sup> operations (at 3 A, 250 VAC)
<b>Response time</b>	Approx. 6 ms
<b>Dielectric strenght</b> Dielectric voltage	2 kVAC (rms)

### Supply Specifications

<b>Power supply</b> Rated operational voltage through terminals plug X1:	6, 7	Overvoltage cat II (IEC 60664) 100 to 240 VAC ±10%, 45 to 65 Hz
<b>Rated operational power</b>		4 VA
<b>Dielectric voltage</b> Supply to input Supply to output Input to output		(EN 61010-1) 2.3 kV/5s 2.3 kV/5s 2.3 kV/5s

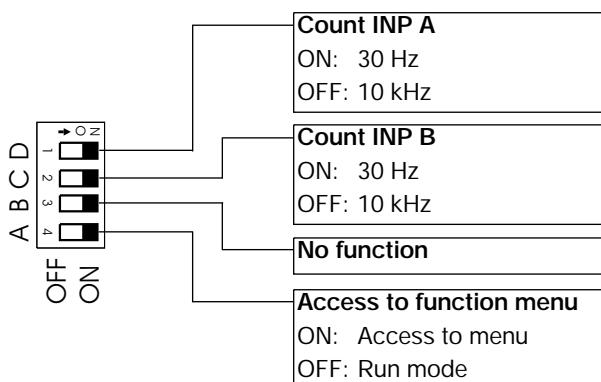
## General Specification

<b>Display</b>		<b>Environment</b>	
Number of digits	6 digits (with sign) 2-line 7 segments LCD display	Degree of protection	(EN 60529) IP 65 front
Display range	-999999 to 999999	Pollution degree	2
Count digit height	9 mm	Operating temperature	0 °C to +50 °C , R.H. <90%
Preset value digit height	7 mm	Storage temperature	-25 °C to +70 °C, R.H. <90%
Indicator for activated output	Present	<b>Housing dimensions</b>	
Indicator for current preset value	Present	48 x 48 x 89.5 mm	
Number of decimal points	2 or 3	<b>Weight</b>	
Programmable scaling factor	0.0001 to 9.9999	Approx. 240 g	
<b>Data retention</b>		<b>Connector</b>	
Min. 10 years or 10 <sup>6</sup> memory cycles		Screw-type, detachable	
<b>Accuracy</b> (temperature drift included)		Screw tightening torque	
0.015%		Connector with grid 5.08mm	
		Connector with grid 3.81mm	
		<b>CE Marking</b>	
		Yes	
		<b>EMC</b>	
		Immunity	
		Emission	
		Electromagnetic Compatibility According to EN 61000-6-2 / EN 55011 class B According to EN 61000-6-4	

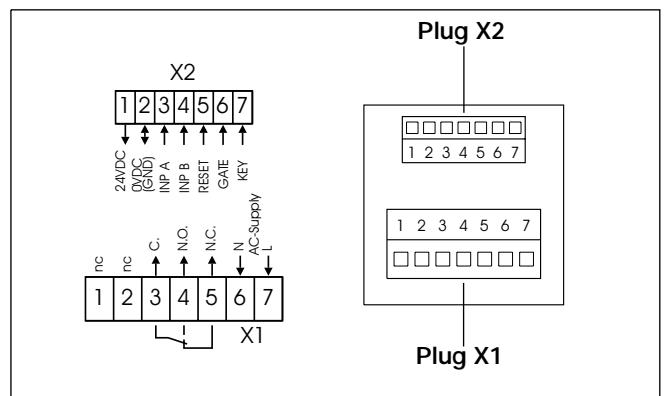
## Front Panel Description

<b>1. Front keys</b>		<b>3. Preset value display</b>	
4 keys:		6 LCD digits	
	To show the functions and steps in the programming routine; to modify the scaling factor; to modify the gate time; to increase the preset value; to eliminate the sign of the preset value.		
	To select the sign of the preset value; to scroll the digits on the "preset value".		
	To confirm the selected step on the routine program.		
	To set the counter to zero (add. mode) or to the preset value (subtr. mode).		
<b>2. Count value display</b>			
6 LCD digits		<b>5. Indicator for current preset value</b>	

## DIP Switches Description



## Terminal Board Connections



## Terminal Board Description

### Plug connection X1

Terminal No.	Designation	Description
1	nc	No function
2	nc	No function
3	C	Relay output common contact
4	N O	Relay output normally open
5	N C	Relay output normally closed
6	N	Power supply (neutral)
7	L	Power supply (line)

### Plug connection X2

Terminal No.	Designation	Function
1	24 VDC	PNP/NPN sensor supply output
2	GND	0 VDC reference voltage
3	INP A	Count input A
4	INP B	Count input B
5	RESET	Reset input
6	GATE	Gate input
7	KEY	Keyboard lock input

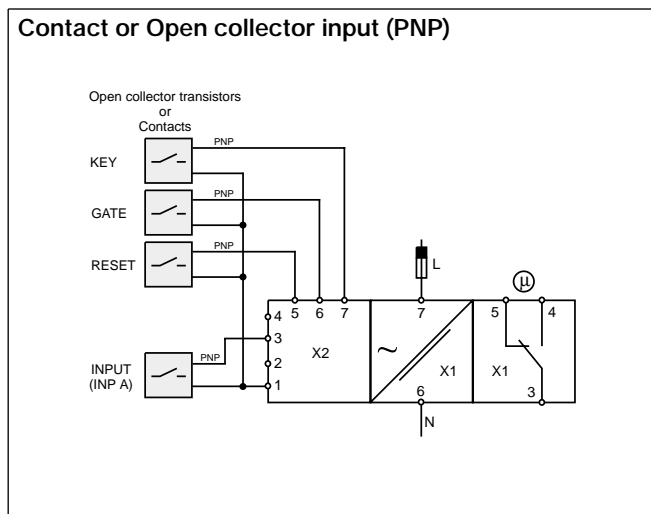
### Warning!

For settings  $\lrcorner$  and  $\llcorner$  the connections of terminal 4 and 5 change as follows:

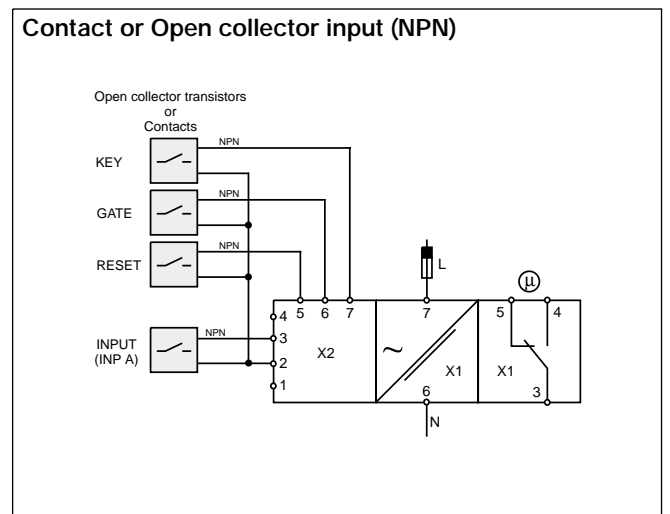
Terminal No.	Designation	Description
4	N C	Relay output normally closed
5	N O	Relay output normally open

## Wiring Diagrams

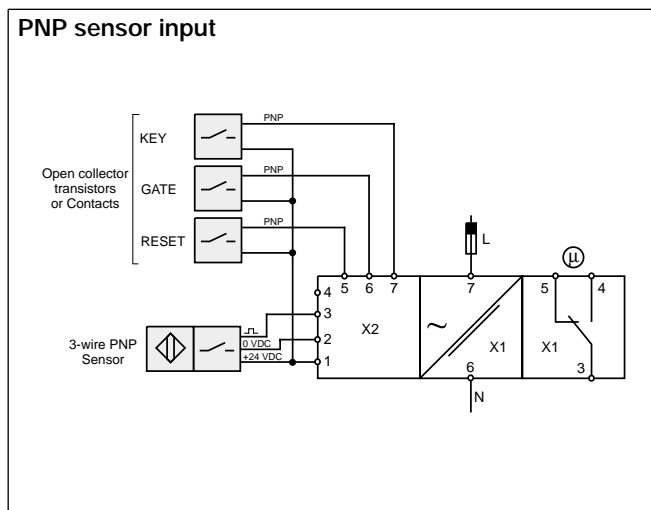
### Contact or Open collector input (PNP)



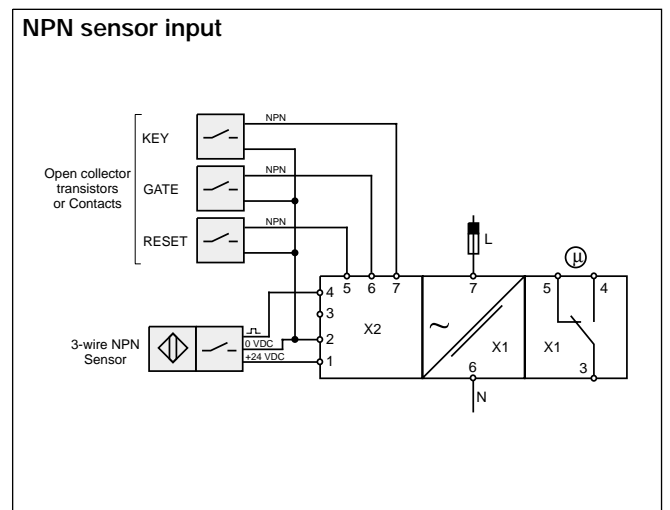
### Contact or Open collector input (NPN)



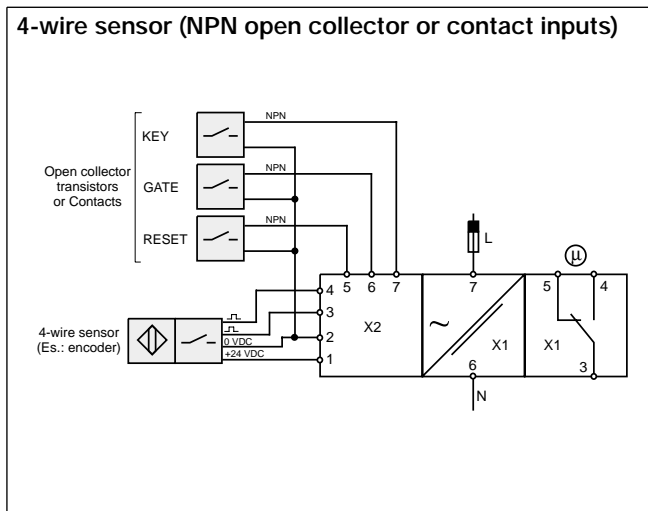
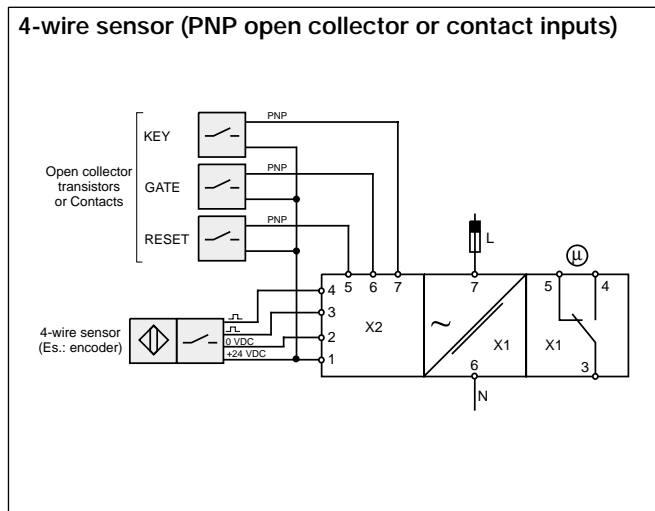
### PNP sensor input



### NPN sensor input



## Wiring Diagrams (cont.)

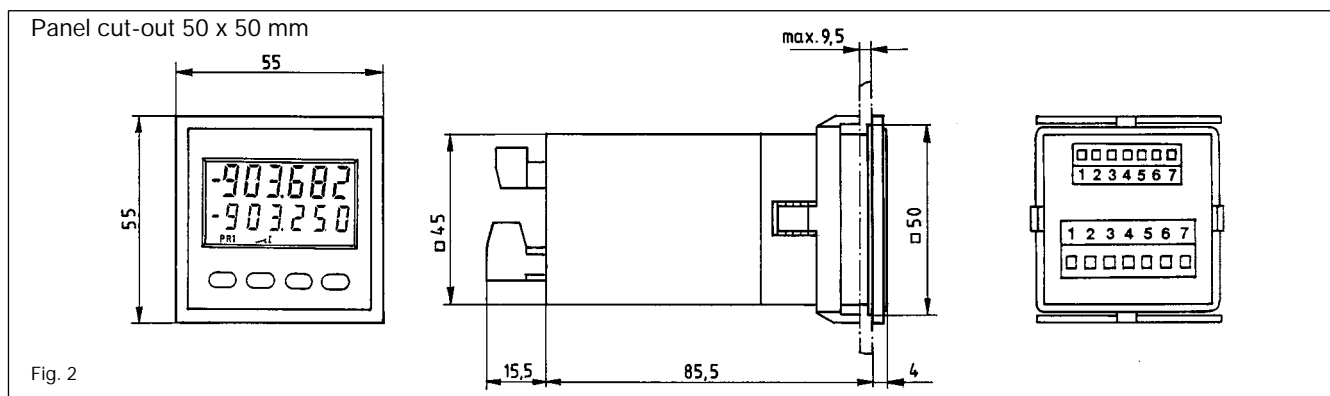
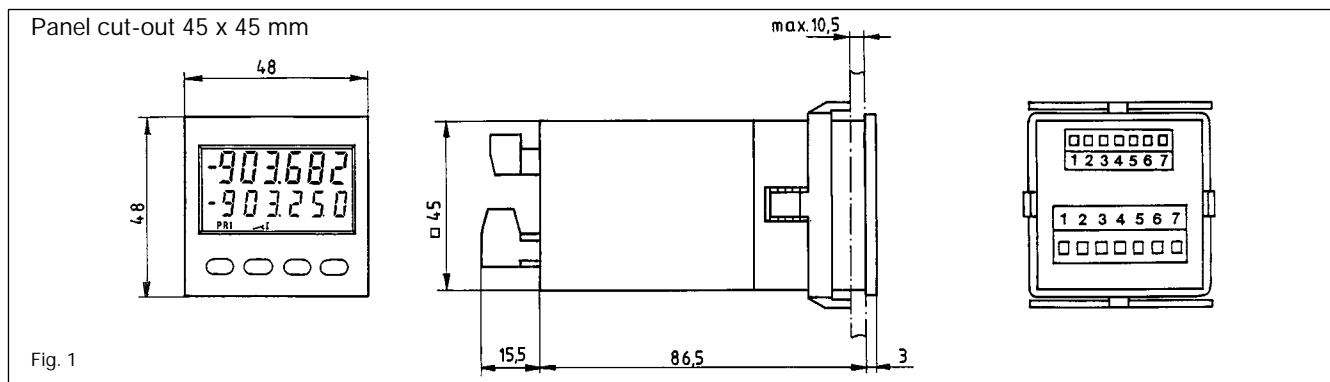


## Accessories Included

The counter is supplied with the followings accessories:

- screw terminal plug 7 poles, reference grid 5.08 mm;
- screw terminal plug 7 poles, reference grid 3.81 mm;
- bezel for clip mount (see fig. 2), panel cut-out 50 x 50 mm;
- bezel for screw mount (see fig.3), panel cut-out 50 x 50 mm;
- panel mounting clip.

## Dimensions



### Dimensions (cont.)

