

# Pulse counters, electronic

## LED pulse counters

## 6 count modes (AC+DC)

## Codix 541



The Codix 541 is a voltage powered pulse counter / position display with 4 count input modes: count direction, difference, addition, quadrature (phase discriminator) x1, x2 and x4, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.



<b>DC</b> 10 ... 30 V	<b>AC</b> 100 ... 240 V	 -20°... +65°C	 IP65	 max. 60 kHz	 Position display	 1 2 1	 1 2 1	 1 3 4	 1 1 2 3 4	 Plug-in screw terminal
Supply voltage		Temperature range	High protection level	Pulse counter/ Totalizer		Count with direction (DIR)	Differential count (up.dn)	Add/Add count (up.up)	Phase discriminator	

### Powerful

- Fast count input – input frequency max. 60 kHz.
- Robust housing – IP65 protected.
- Very bright LED display, 14 mm high.
- Position, difference, adding or count direction detection:
  - programmable for positive (PNP) or OV (NPN) switching input pulses.
  - fast count input with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up.

### User-friendly and universal

- Large keys – can also be operated when wearing gloves.
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt.
- Individually programmable scaling: Multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm or packaging units.
- 4 different count input modes: 2-channel count input for detecting count direction, difference or adding mode, quadrature with x1, x2 or x4 evaluation.
- Freely programmable setpoint.
- AC or DC supply voltage with sensor supply voltage.
- As an alternative to the HTL inputs, devices are available with a 4 ... 30 V DC input level, for use as parallel displays to PLCs.
- Optional output - as zero signal.

### Order code

6.541 . 01 X . X X 0

#### a Output

- 1 = Optocoupler output
- 2 = No output <sup>1)</sup>

#### b Supply voltage

- 0 = 100 ... 240 V AC, ±10 % <sup>1)</sup>
- 3 = 10 ... 30 V DC <sup>1)</sup>

#### c Input switching level

- 0 = Standard level (HTL) <sup>1)</sup>
- A = 4 ... 30 V DC

#### Delivery specification

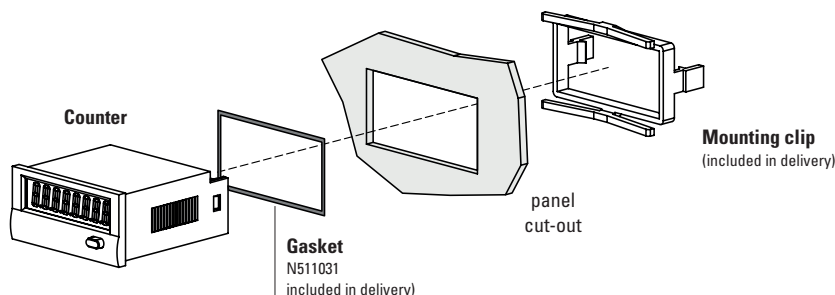
- Digital display
- Mounting clip
- Gasket
- 2 screw terminals
- Instruction manual, multilingual


1) Stock types.

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## Accessories / Mounting examples



		Type / size	Description		Order no.	
<b>Gasket counter</b>			96 x 49 mm [3.78 x 1.93"]		<b>N511031</b>	
<b>Mounting frame</b>		<b>cut-out</b> 92 x 45 mm [3.62 x 1.77"]	for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	grey	<b>G300005</b>	—
<b>Screw terminal</b> (Replacement part)			1 ... 7, pitch 3.81 1 ... 2, pitch 5.08	7 pin 2 pin	<b>N100387</b> <b>N100133</b>	
						incl. in delivery

## Technical data

General technical data		Mechanical characteristics	
<b>Display</b>	6 digits; red 7 segment LED display; 14 mm [0.55"] high	<b>Housing</b>	front panel mount 96x48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
<b>Data backup</b>	EEPROM	<b>Protection</b>	IP65 (front side)
<b>Operating temperature</b>	-20 °C ... +65 °C [-4 °F ... +149 °F] (non-condensing)	<b>Weight</b>	approx. 150 g [5.29 oz]
<b>Storage temperature</b>	-25 °C ... +70 °C [-13 °F ... +158 °F]	<b>Inputs</b>	
<b>Relative humidity</b> at +30 °C [+86 °F]	< 85 % (non-condensing)	<b>Polarity of inputs</b>	programmable, NPN or PNP for all inputs
<b>Altitude</b>	up to 2000 m [6562']	<b>Input resistance</b>	approx. 5 kΩ
Electrical characteristics		<b>Counting frequency <sup>1)</sup></b> at position display	max. 60 kHz, can be damped to 30 Hz max. 25 kHz
<b>Supply voltage</b>	10 ... 30 VDC, with reverse polarity protection 100 ... 240 V AC, ±10 %	<b>Minimum pulse duration of the reset input</b>	5 ms
<b>Current consumption</b>	max. 50 mA, 8 VA	<b>Input switching level standard version (HTL)</b>	
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3	DC supply voltage	LOW 0 ... 0.2 x U <sub>B</sub> (V DC) HIGH 0.6 x U <sub>B</sub> ... 30 V DC
<b>Device safety</b> designed to protection class application area	EN 61010 part 1 2 pollution level 2	AC supply voltage	LOW 0 ... 4 V DC HIGH 12 ... 30 V DC
<b>UL approval</b>	file E128604	<b>Input switching level at 4 ... 30 V DC</b>	
		LOW	0 ... 2 V DC
		HIGH	4 ... 30 V DC
		Outputs	
		<b>Supply voltage for sensors (AC version)</b>	24 V DC ±15 %/100 mA
		<b>Output power optocouplers</b>	max. 30 V DC, 10 mA

1) Please refer to the manual.

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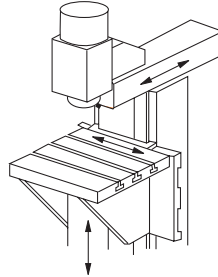
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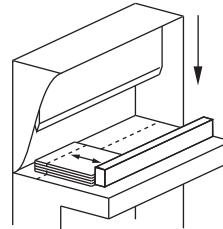
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### Applications for position displays and totalizers

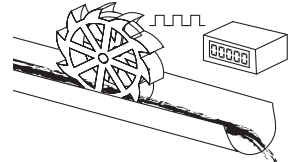
- Positioning tasks on processing machines, such as sawing machines, milling machines, bending and folding machines, etc.
- Production data acquisition by means of piece counting (using difference or adding)
- Totalizing flow, quantity and other scalable media
- Counting tasks such as quantity and piece counting
- Accessories, OEM equipment or retrofitting to production machines
- Piece counting on die cutters, presses, extruders, wood-working machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.



Position on milling machine

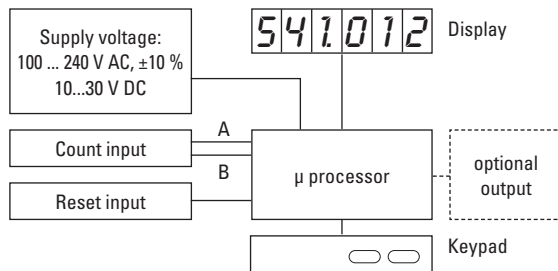


Position or quantity

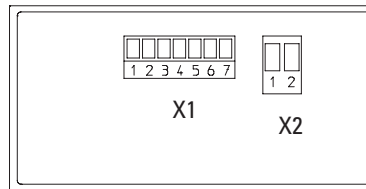


Flow rate

### Block diagram



### Terminal assignment



#### Connection X1

PIN	AC version	DC version
1	Optocoupler-output Emitter	
2	Optocoupler-output Collector	
3	Set	
4	INP B	
5	INP A	
6	GND out	n.c.
7	+24 V DC out	n.c.

#### Connection X2

PIN	AC version	DC version
1	100 ... 240 V AC, $\pm 10\%$	0VDC (GND)
2	100 ... 240 V AC, $\pm 10\%$	10...30 V DC

### Dimensions

Dimensions in mm [inch]

