

# Pulse counters, electronic

LED pulse counters	6 count modes (AC+DC)	Codix 541
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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	<b>-20... +65°C</b> Temperature range	<b>IP65</b> High protection level	<b>max. 60 kHz</b> Pulse counter/ Totalizer	<b>Position</b> Position display	<b>1 2 1</b> Count with direction (DIR)	<b>1 2 1</b> Differential count (up.dn)	<b>1 3 4</b> Add/Add count (up.up)	<b>1 1 2 3 4</b> Phase discriminator	<b>Plug-in screw terminal</b>
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### 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
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- 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

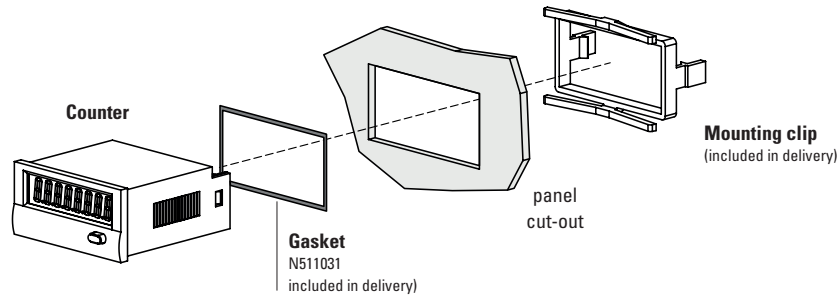
- Delivery specification*
- Digital display
  - Mounting clip
  - Gasket
  - 2 screw terminals
  - Instruction manual, multilingual

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

<b>Display</b>	6 digits; red 7 segment LED display; 14 mm [0.55"] high
<b>Data backup</b>	EEPROM
<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> at +30 °C [+86 °F]	< 85 % (non-condensing)
<b>Altitude</b>	up to 2000 m [6562']

### Electrical characteristics

<b>Supply voltage</b>	10 ... 30 VDC, with reverse polarity protection 100 ... 240 V AC, ±10 %
<b>Current consumption</b>	max. 50 mA, 8 VA
<b>EMC standards</b>	EN 55011 class B EN 61000-6-2, EN 61000-6-3
<b>Device safety</b>	designed to protection class application area EN 61010 part 1 2 pollution level 2
<b>UL approval</b>	file E128604

### Mechanical characteristics

<b>Housing</b>	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 150 g [5.29 oz]

### Inputs

<b>Polarity of inputs</b>	programmable, NPN or PNP for all inputs
<b>Input resistance</b>	approx. 5 kΩ
<b>Counting frequency</b> <sup>1)</sup> at position display	max. 60 kHz, can be damped to 30 Hz max. 25 kHz
<b>Minimum pulse duration of the reset input</b>	5 ms
<b>Input switching level standard version (HTL)</b>	
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
AC supply voltage	LOW 0 ... 4 V DC HIGH 12 ... 30 V DC
<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

### 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
<b>UKCA compliant</b> in accordance with	
EMC Regulations	S.I. 2016/1091
RoHS Regulations	S.I. 2012/3032
Low Voltage Regulations	S.I. 2016/1101

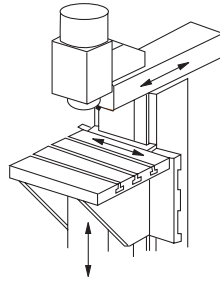
1) Please refer to the manual.

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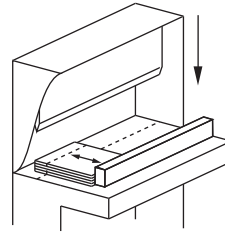
**LED pulse counters**      **6 count modes (AC+DC)**      **Codix 541**

### Applications for position displays and totalizers

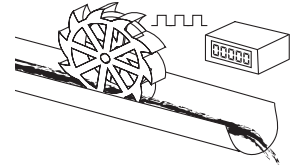
- Positioning tasks on processing machines, such as sawing machines, milling machines, bending and folding machines, etc.
- Production data acquisition by means of piece counting (using difference or adding)
- Totalizing flow, quantity and other scalable media
- Counting tasks such as quantity and piece 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

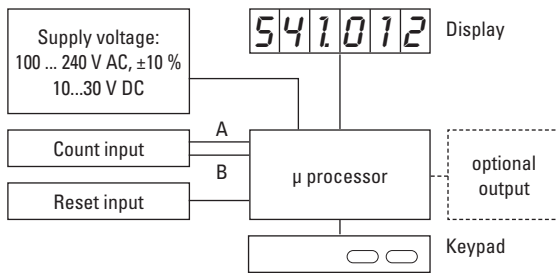


Position or quantity

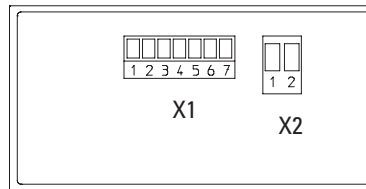


Flow rate

### 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, ±10 %	0VDC (GND)
2	100 ... 240 V AC, ±10 %	10 ... 30 V DC

### Dimensions

Dimensions in mm [inch]

