

# 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.



Pulse  
counters

<b>DC</b> 10 ... 30 V	<b>AC</b> 100 ... 240 V	 - 20° + 65°	 IP65	 max. 60 kHz	 POSITION	 1 2 1	 1 2 1	 1 3 4	 1 2 3 4	 Plug-in screw terminal
Power supply		Temperature range	High protection level	Pulse counter/ Totaliser	Position display	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 power supply with sensor power supply.
- 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 . XX 0

**a** Output  
1 = Optocoupler output  
2 = No output <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

**Replacement parts**  
7 pin screw terminal RM 3.81 1 ... 7: N100387  
2 pin screw terminal RM 5.08 1 ... 2: N100133

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

Accessories	Dimensions in mm [inch]	Order-No.
<b>Mounting frame</b> with cut-out 92 x 45 [3.62 x 1.77]	For snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey <b>G300005</b>

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: [www.kuebler.com/accessories](http://www.kuebler.com/accessories).

1) Stock types

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## 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>Altitude</b>	up to 2000 m [6562']

Electrical characteristics	
<b>Power supply</b>	10 ... 30 V DC, with reverse polarity protection 100 ... 240 V AC, ± 10%
<b>Current consumption</b>	max. 50 mA, 6 VA
<b>EMC</b>	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
<b>Device safety</b>	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2

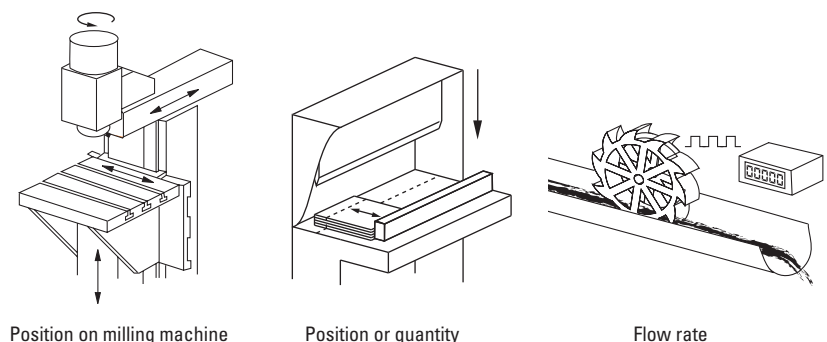
Mechanical characteristics	
<b>Housing</b>	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP6 (front side)
<b>Weight</b>	approx. 150 g [5.29 oz]

Inputs	
<b>Polarity of inputs</b>	programmable, NPN or PNP for all inputs
<b>Input resistance</b>	approx. 5 kΩ
<b>Counting frequency <sup>1)</sup></b>	max. 60 kHz, can be damped to 30 Hz at position display max. 25 kHz
<b>Minimum pulse duration of the reset input</b>	5 ms
<b>Input switching level standard version (HTL)</b>	
DC power supply	LOW 0 ... 0.2 x U <sub>B</sub> (V DC) HIGH 0.6 x U <sub>B</sub> ... 30 V DC
AC power supply	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

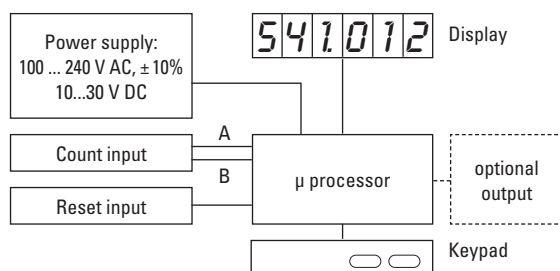
Outputs	
<b>Power supply for sensors (AC version)</b>	24 V DC ± 15 %/100 mA
<b>Output power optocouplers</b>	max. 30 V DC, 10 mA

## Applications for position displays and totalisers

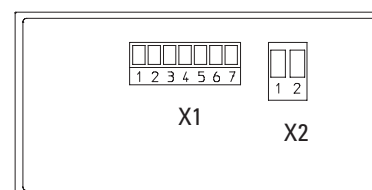
- Positioning tasks on processing machines, such as sawing machines, milling machines, bending and folding machines, etc.
- Production data acquisition by means of piece counting (using difference or adding)
- Totalizing flow, quantity and other scalable media
- Counting tasks such as quantity and piece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



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

<sup>1)</sup> please refer to the manual

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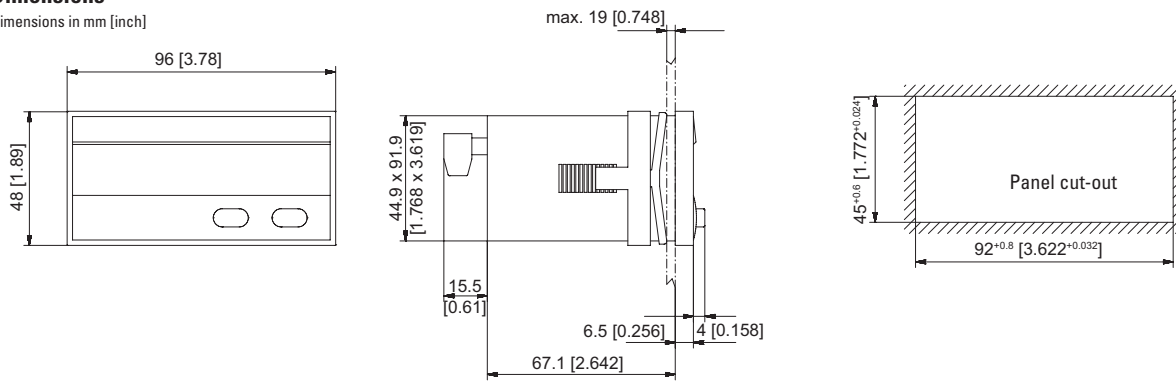
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## Dimensions

Dimensions in mm [inch]



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