

# Pulse counters, electronic

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

### 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 . X X 0**

<b>a</b> Output 1 = Optocoupler output 2 = No output <sup>1)</sup>	<b>c</b> Input switching level 0 = Standard level (HTL) <sup>1)</sup> A = 4 ... 30 V DC	<b>Delivery specification</b> - Digital display - Mounting clip - Gasket - 2 screw terminals - Instruction manual, multilingual	<b>Replacement parts</b> 7 pin screw terminal RM 3.81 1 ... 7: N100387 2 pin screw terminal RM 5.08 1 ... 2: N100133
<b>b</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	
Display	6 digits; red 7 segment LED display; 14 mm [0.55"] high
Data backup	EEPROM
Operating temperature	-20°C ... +65°C [-4°F ... +149°F] (non-condensing)
Storage temperature	-25°C ... +70°C [-13°F ... +158°F]
Altitude	up to 2000 m [6562']

Electrical characteristics	
Power supply	10 ... 30 V DC, with reverse polarity protection 100 ... 240 V AC, ±10 %
Current consumption	max. 50 mA, 6 VA
EMC standards	EN 55011 class B EN 61000-6-2, EN 61000-6-3
Device safety	designed to protection class 2 application area EN 61010 part 1 pollution level 2
UL approval	file E128604

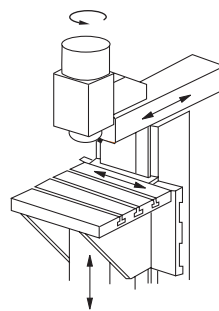
Mechanical characteristics	
Housing	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 150 g [5.29 oz]

Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency <sup>1)</sup> at position display	max. 60 kHz, can be damped to 30 Hz max. 25 kHz
Minimum pulse duration of the reset input	5 ms
Input switching level standard version (HTL)	
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
Input switching level at 4 ... 30 V DC	
LOW	0 ... 2 V DC
HIGH	4 ... 30 V DC

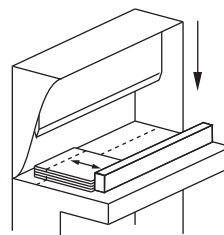
Outputs	
Power supply for sensors (AC version)	24 V DC ±15 %/100 mA
Output power optocouplers	max. 30 V DC, 10 mA

### Applications for position displays and totalizers

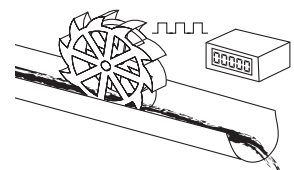
- Positioning tasks on processing machines, such as sawing machines, milling machines, bending and folding machines, etc.
- Production data acquisition by means of piece counting (using difference or adding)
- Totalizing flow, quantity and other scalable media
- Counting tasks such as quantity and piece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

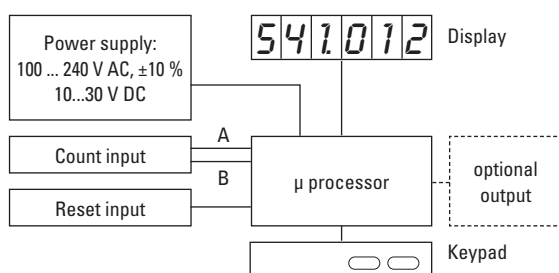


Position or quantity

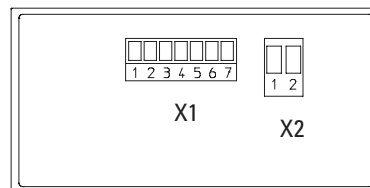


Flow rate

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

1) Please refer to the manual.

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## Dimensions

Dimensions in mm [inch]

