

# Pulse counters, electronic

LED pulse counters	6 count modes (DC)	Codix 521
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The Codix 521 is a voltage powered pulse counter / position display for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.

Equipped with 4 count input modes: count direction, difference, addition, quadrature (phase discriminator) x1, x2 and x4.



Pulse counters

<b>DC</b> 10 ... 30V Power supply	 DIN 48 x 24 DIN front bezel	 - 20° + 65° Temperature range	 IP65 High protection level	 Menu-driven programming	 max. 60 kHz Pulse counter/ Totaliser	 POSITION Position display	 1 2 1 Count with direction (DIR)	 1 2 1 Differential count (up.dn)	 1 3 4 Add/Add count (up.up)	 1 1 2 2 3 4 Phase discriminator
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### Powerful

- Fast count input – input frequency max. 60 kHz.
- Robust housing – IP65 protected.
- Very bright LED display, 8 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

- 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 packing 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.
- 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	6.521 . 01 X . 3 X 0
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<p><b>a</b> Output</p> <p>1 = optocoupler output 2 = no output <sup>1)</sup></p>	<p><b>b</b> Input switching level</p> <p>0 = Standard (HTL) <sup>1)</sup> A = 4 ... 30 V DC</p>	<p><b>Delivery specification</b></p> <ul style="list-style-type: none"> <li>- Counter</li> <li>- Mounting clip</li> <li>- Gasket</li> <li>- Instruction manual, multilingual</li> </ul>	<ul style="list-style-type: none"> <li>- Front bezel for screw mounting (T008181) 56 x 40 mm [2.20 x 1.57"], panel cut-out 50 x 25 mm [1.97 x 0.98"]</li> <li>- Front bezel for clip mounting (T008180) 53 x 28 mm [2.09 x 1.10"], panel cut-out 50 x 25 mm [1.97 x 0.98"]</li> </ul>
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1) Stock types

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Accessories	Dimensions in mm [inch]	Order-No.
<b>Adapter front bezel, 72 x 36 [2.83 x 1.42]</b>	For cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set black and silver anodised	<b>162704 Set</b>
<b>Adapter front bezel, 48 x 48 [1.89 x 1.89]</b>	For cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94] black	<b>T008883</b>
<b>Adapter front bezel, 60 x 50 [2.36 x 1.97]</b>	For cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94] black	<b>N003001</b>
<b>Transparent cover, lockable, IP65</b>	For cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]	<b>N003002</b>
<b>Sealing cover type K1, IP65</b>	Suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]	<b>G008301</b>
<b>Mounting frame</b> with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	For snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94] chromated	<b>G300004</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).

### Technical data

General technical data	
<b>Display</b>	6 digits, red 7 segment LED display; 8 mm [0.32"] high
<b>Data backup</b>	EEPROM
<b>Operating temperature</b>	10 ... 26 V DC    -20°C ... +65°C [-4°F ... +149°F] > 26 ... 30 V DC    -20°C ... +55°C [-4°F ... +131°F] (non-condensing)
<b>Storage temperature</b>	-25°C ... +70°C [-13°F ... +158°F]
Electrical characteristics	
<b>Power supply</b>	10...30 V DC, with reverse polarity protection
<b>Current consumption</b>	max. 55 mA
<b>EMC</b>	Emitted interference    EN 55011 class B Immunity to interference    EN 61000-6-2

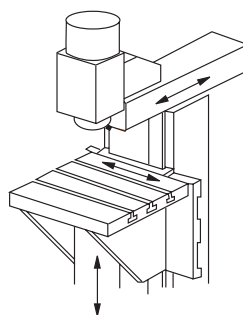
Mechanical characteristics	
<b>Housing</b>	front panel mount 48x24mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
<b>Protection</b>	IP65 (front side)
<b>Weight</b>	approx. 50 g [1.76 oz]

Inputs	
<b>Polarity of inputs</b>	programmable, NPN or PNP for all inputs
<b>Input resistance</b>	approx. 5 kΩ
<b>Counting frequency</b>	max. 60 kHz, can be damped to 30 Hz; for position display max. 25 kHz
<b>Minimum pulse duration of the reset input</b>	5 ms
<b>Input switching level (HTL)</b>	LOW    0 ... 0.2 x U <sub>B</sub> (V DC) HIGH    0.6 x U <sub>B</sub> ... 30 V DC
<b>Input switching level at 4 ... 30 V DC</b>	LOW    0 ... 2 V DC HIGH    4 ... 30 V DC

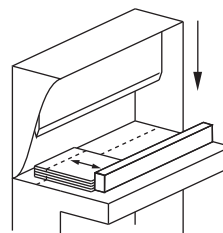
Outputs (optional)	
<b>Optocoupler output</b>	max. 30 V DC, 10 mA

### Applications for position displays / totalisers

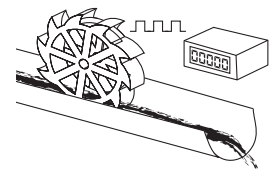
- Positioning tasks on processing machines, such as sawing machines, milling machines, bending and folding machines, etc.
- Production data acquisition by means of piece counting (using difference or adding)
- Totalizing flow, quantity and other scalable media
- Counting tasks such as quantity and piece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



Position on milling machine



Position or quantity

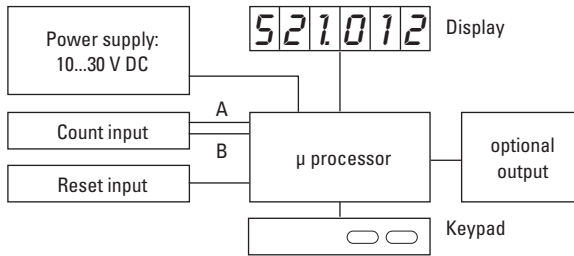


Flow rate

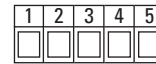
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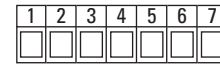
## Block diagram



## Terminal assignment



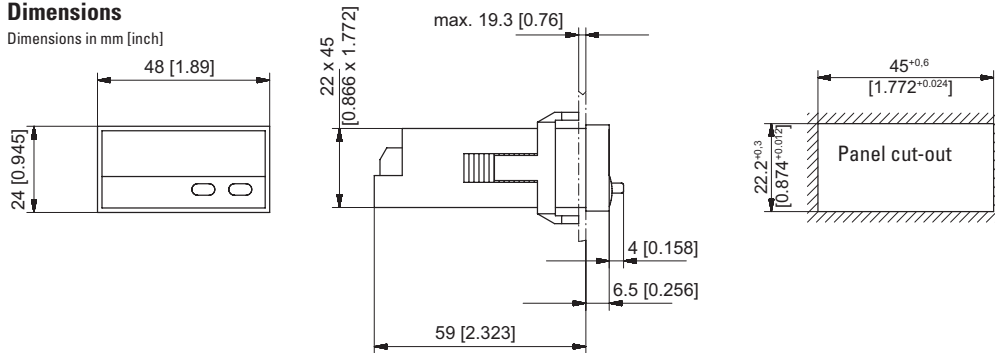
PIN	without optocoupler
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset



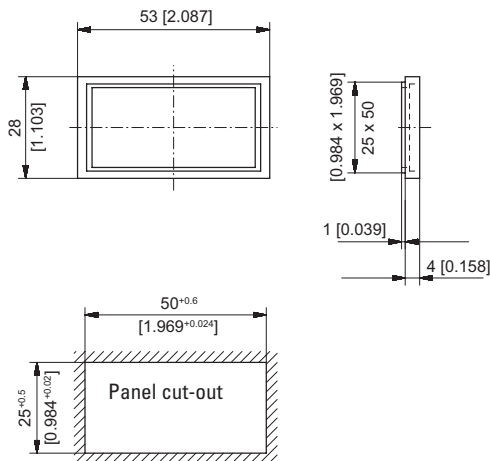
PIN	with optocoupler (NPN)
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset
6	Emitter
7	Collector

## Dimensions

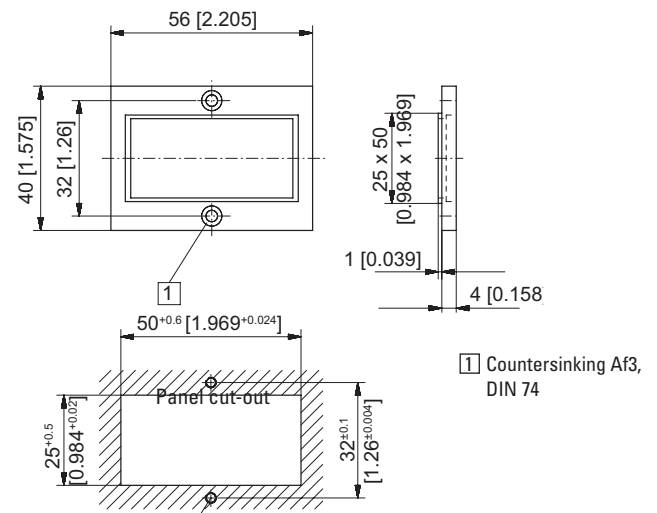
Dimensions in mm [inch]



## Front bezel for clip mounting (included in delivery)



## Front bezel for screw mounting (included in delivery)



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