

# Frequency displays / tachometers

<b>LED frequency displays</b>	<b>Measuring range 1/min or 1/sec HRA-measurement (DC)</b>	<b>Codix 522</b>
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The Codix 522 is a simple voltage powered frequency display / tachometer.

Display in 1/min or 1/sec, freely scalable, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals, with fast HRA measurement system (High Rate Accuracy).



<b>DC</b> 10 ... 30 V Supply voltage	<b>000000</b> DIN 48x24 DIN front bezel	<b>-20...+65°C</b> Temperature range	<b>IP65</b> High protection level	<b>Prog</b> Menu-driven programming	<b>1/sec - 1/min</b> Frequency display/ Tachometer	<b>HRA</b> Frequency display with HRA
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## Powerful

- Very bright LED display, 8 mm high.
- Fast count input – input frequency max. 60 kHz.
- Robust housing – IP65 protected.
- Very accurate precise frequency measurement principle (HRA - High Rate Accuracy System)  
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1 % is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.

## 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 to 99.9999), to display corresponding engineering units, e.g. frequency in Hz and speed in RPM.
- Programmable decimal point, can be set from 0.0 to 0.000 (this determines the resolution).
- Programmable delay until 0 is displayed.
- Display in 1/min or 1/sec.
- As an alternative to the HTL inputs, devices with a 4 ... 30 V DC input level are available.
- Optional output for zero-speed monitoring.

## Order code

6.522 . 01 X . 3 X 0  
a b

### a Output

- 1 = optocoupler output
- 2 = no output

### b Input switching level

- 0 = Standard (HTL)
- A = 4 ... 30 V DC level

### Stock types

6.522.012.300

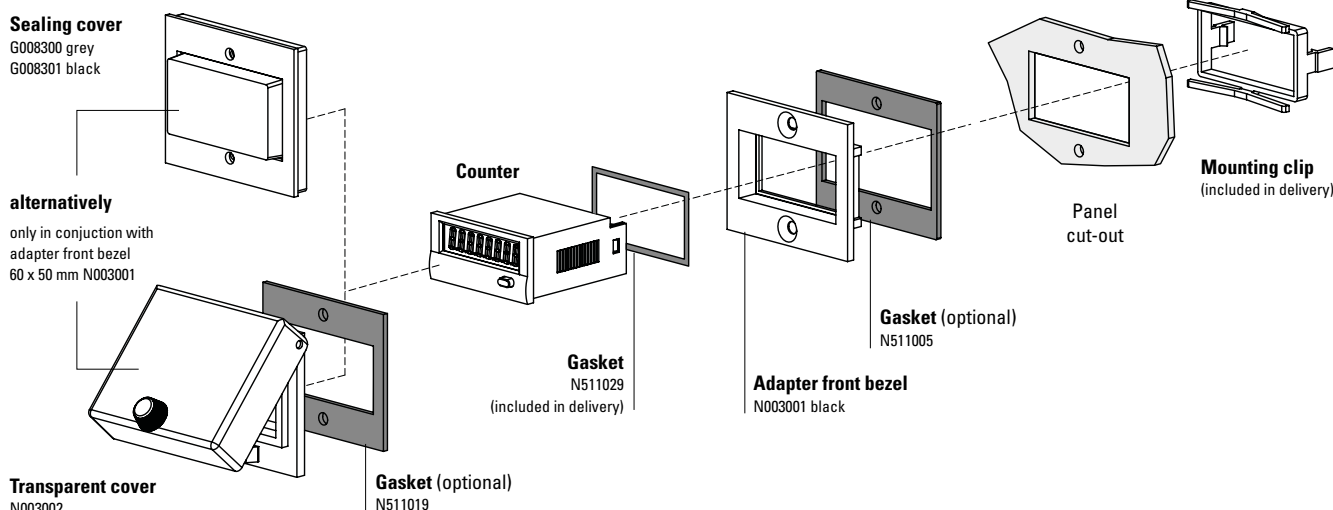
### Delivery specification

- Pulse counter
- Mounting clip
- 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"]
- 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"]
- Gasket
- Instruction manual, multilingual

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## Accessories / Mounting examples



		Type / size	Description		Order no.	suitable gasket
<b>Adapter front bezel</b>		<b>53 x 28 mm</b> [2.09 x 1.10"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black anthracite	<b>T008165</b> <b>T008180</b>	<b>N511015</b>
		<b>56 x 40 mm</b> [2.20 x 1.57"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black anthracite	<b>T008161</b> <b>T008181</b>	<b>N511045</b>
		<b>72 x 36 mm</b> [2.83 x 1.42"]	for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	<b>162704Set</b>	—
		<b>60 x 50 mm</b> [2.36 x 1.97"]	for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	<b>N003001</b>	<b>N511005</b>
		<b>48 x 48 mm</b> [1.89 x 1.89"]	for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	<b>T008883</b>	—
<b>Sealing cover IP65</b>		<b>K1</b>	only in conjunction with adapter front bezel 60 x 50 mm N003001	transparent / grey transparent / black	<b>G008300</b> <b>G008301</b>	—
<b>Transparent cover IP65</b>		<b>1 Dv</b> (mounted on bezel)	cover lockable, for cut-out 54 x 29 mm [2.13 x 1.14"], only in conjunction with adapter front bezel 60 x 50 mm N003001	transparent / black	<b>N003002</b>	<b>N511019</b>
<b>Gasket counter</b>			48 x 24 mm (for installation in adapter front bezel) 49 x 25 mm		<b>N511029</b> <b>N511034</b>	
<b>Mounting frame</b>		<b>cut-out</b> <b>50 x 25 mm</b> [1.97 x 0.98"]	via adapter T008180 for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	<b>G300004</b>	—
<b>Enclosure blind</b>		<b>48 x 24 mm</b> [1.89 x 0.94"]	for cut-out 45 x 22.2 mm [1.77 x 0.94"] and cut-out 50 x 25 mm [1.97 x 0.98"]	anthracite	<b>G003836</b>	—

incl. in delivery

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## 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>Supply voltage</b>	10 ... 30 VDC, with integrated reverse polarity protection
<b>Current consumption</b>	max. 50 mA

### Mechanical characteristics

<b>Housing</b>	front panel mount 48x24 mm [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]
<b>Vibration resistance</b> acc. to EN 60068-2-6	10 ... 55 Hz / 1 mm [0.04"] / 30 min
<b>Shock resistance</b> acc. to EN 60068-2-27	100 G: 2 ms 10 G: 6 ms

### Inputs

<b>Polarity of inputs</b>	programmable, NPN or PNP
<b>Input resistance</b>	approx. 5 kΩ
<b>Counting frequency</b>	max. 60 kHz, can be damped to 30 Hz
<b>Measurement principle / Accuracy</b>	Gate and/or time interval (period duration) measurement, with high accuracy <0.1 % (HRA)
<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)

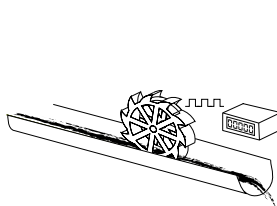
<b>Optocoupler output</b>	max. 30 V DC, 10 mA
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### Approvals

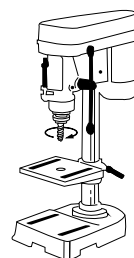
<b>UL compliant</b> in accordance with	File no. E128604
<b>CE compliant</b> in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU

## Applications for speed and frequency displays

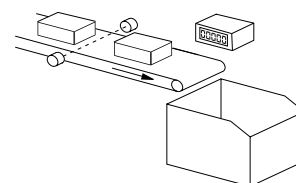
- Rotary speed applications, e.g. OEM equipment or retrofitting to drilling machines
- OEM equipment for flow rate measuring, e.g. current flow rate; production data such as volume/time
- Speed applications on motors, turbines, machines; feed-rate measurement
- Recording of production rates
- Frequency measurement



Mass flow rate

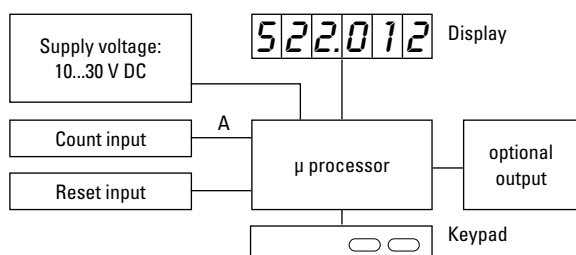


Drilling machine head, rotary speed



Production rate

## Block diagram



## Terminal assignment

1	2	3	4	5

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

1	2	3	4	5	6	7

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

# Frequency displays / tachometers

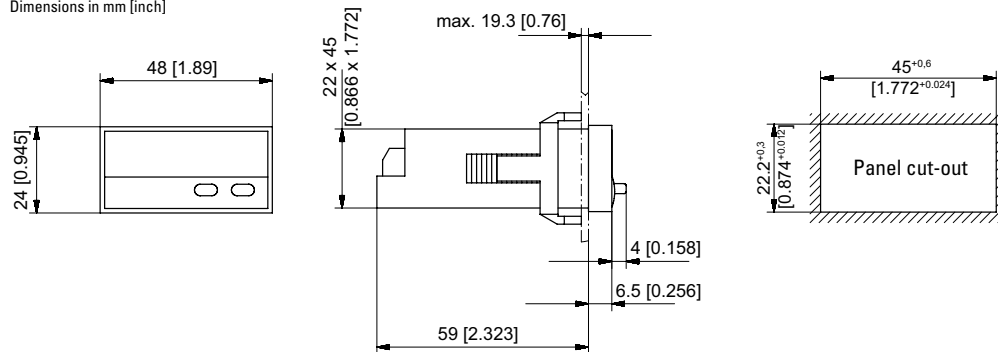
## LED frequency displays

## Measuring range 1/min or 1/sec HRA-measurement (DC)

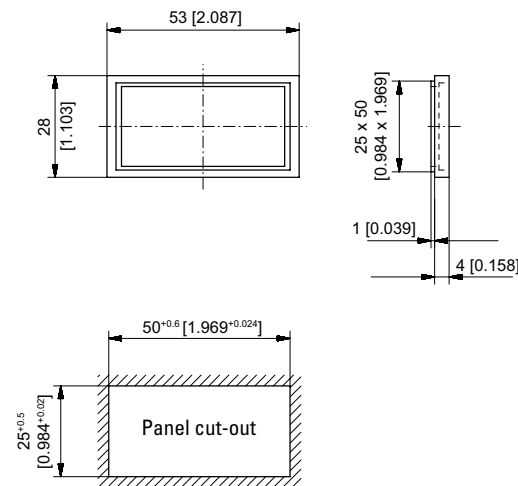
## Codix 522

### Dimensions

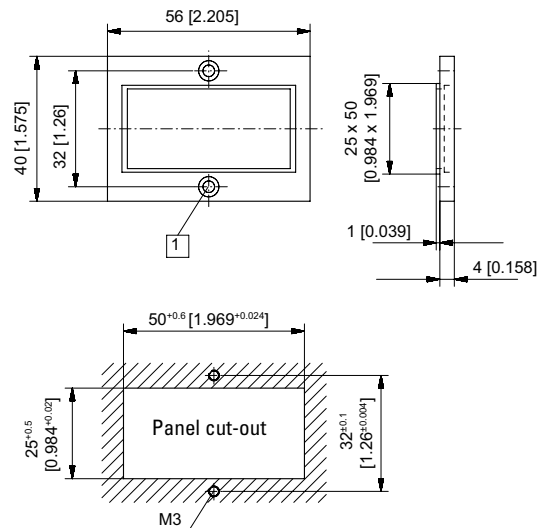
Dimensions in mm [inch]



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



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



1 Countersinking Af3, DIN 74