

## Multifunction devices, electronic

### LED multifunction display

### Multifunctional – pulse, frequency, time (AC+DC)

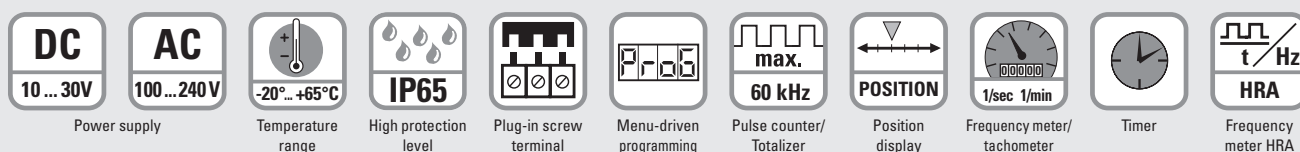
### Codix 544



The Codix 544 is a voltage-powered multifunction counter with 4 functions in one device:

Pulse, position, frequency and speed display, timer and short time meter.

With 6-digit LED display for NPN, PNP input signals.



#### Powerful

- Fast count and frequency input – input frequency max. 60 kHz (can be damped to 30 Hz for mechanical contacts).
- Robust housing – IP65 protected.
- Very bright LED display, 14 mm high, 6 digits.
- 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.
- 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.
- Programming:
  - 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 and speed in RPM.
- 4 different count input modes:  
2-channel count input for detecting count direction, difference or adding mode, quadrature with x1, x2 or x4 evaluation.
- Frequency measurement: display in 1/min or 1/sec.
- Time counting: pulse width or time interval measurement in hours, minutes or seconds, as well as real-time display.
- AC or DC power supply.
- Inputs: as an alternative to the HTL inputs, devices are available with a 5 V DC input level, for use as parallel displays to PLCs.
- Optional output: zero signal for position and count, zero speed monitoring, 1 Hz clock pulse for active time measurement.

#### Order code

6.544 . 01 X . XX 0

##### a Output

- 1 = optocoupler
- 2 = no output <sup>1)</sup>

##### b Power supply

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

##### c Input switching level

- 0 = Standard (HTL) <sup>1)</sup>
- A = 4 ... 30 V DC

##### Delivery specification

- Digital display
- Mounting clip
- Gasket
- 2 plug-in 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

1) Stock types

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|                                  |   |                  |
|----------------------------------|---|------------------|
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|----------------------------------|---|------------------|

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

## Technical data

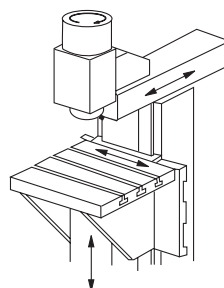
| General technical data     |   |   |
|----------------------------|---|---|
| Display                    | 6 digit, red 7 segment<br>LED display; 14 mm [0.55"] high                                 |   |
| Data backup                | EEPROM  |   |
| Operating temperature      | -20°C ... +65°C [-4°F ... +149°F]<br>(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 integrated reverse<br>polarity protection<br>100 ... 240 V AC, ±10 % |   |
| Current consumption        | max. 50 mA, 6 VA  |   |
| EMC standards              | EN 55011 class B,<br>EN 61000-6-2, EN 61000-6-3   |   |
| Device safety              | designed to<br>protection class<br>application area                                       | EN 61010 part 1<br>2<br>pollution level 2 |
| UL approval                | file E128604  |   |
| Mechanical characteristics |   |   |
| Housing                    | front panel mount 96 x 48 mm<br>[3.74 x 1.89"] acc. to DIN 43700;<br>RAL 7021, dark grey  |   |
| Protection                 | IP65 (front side)   |   |
| Weight                     | approx. 150 g [5.29 oz]   |   |

| Inputs                                       |  |  |
|--|--|--|
| Polarity of inputs                           | programmable, NPN or PNP<br>for all inputs                                 |  |
| Input resistance                             | approx. 5 kΩ   |  |
| Counting frequency <sup>1)</sup>             | max. 60 kHz,<br>can be damped to 30 Hz<br>for position display max. 25 kHz |  |
| Display range                                | timer<br>frequency meter   | 0.001 s ... 999999 h<br>1/min or 1/sec |
| Minimum pulse duration of the<br>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                          |
| Accuracy                                     | tachometer<br>timer  | < 0.1 %<br>< 50 ppm                    |

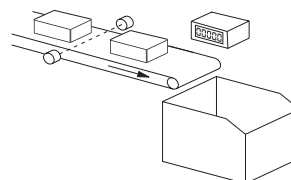
| Outputs                          |                      |
|----------------------------------|----------------------|
| Sensor power supply (AC version) | 24 V DC ±15 %/100 mA |
| Optocoupler output               | max. 30 V, 10 mA     |

## Applications for multifunction display

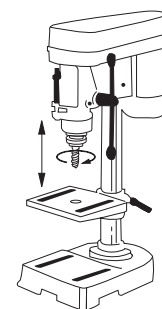
- Counting tasks such as quantity and piece counting, measuring and recording of speed and of operating and processing times
- Piece counting or tool-life measurement on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.
- 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), or measurement of production times or production speeds
- Totalizing flow, quantity and other scaleable media, or display of current flow rates.



Position or rotary speed on milling machine



Piece count on conveyor or production speed



Drilling machine head, speed or drilling depth

1) Details see manual

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## Functions

### Pulse counter:

Various counting modes such as count direction, difference, addition, phase discriminator

### Position display:

Phase discriminator with simple, double or quadruple evaluation

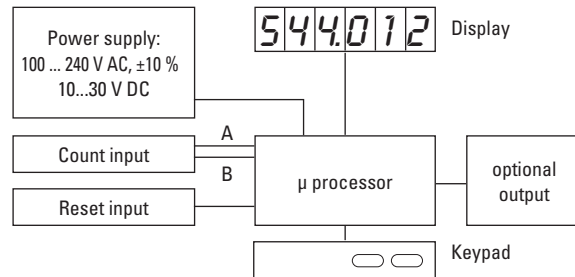
### Frequency and speed display:

Pulses per minute or per second scaleable, with HRA measurement

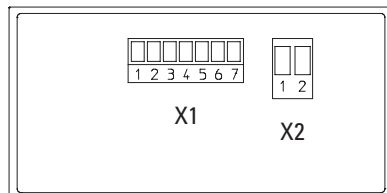
### Hour meters and short-time meters:

Various programmable time ranges with different ways of measuring

## Block diagram



## Terminal assignment



### Connection X1

| PIN | AC version         | DC version |
|-----|--------------------|------------|
| 1   | Optocoupler output | Emitter    |
| 2   | Optocoupler output | Collector  |
| 3   | Reset / Set        |            |
| 4   | INP B              |            |
| 5   | INP A              |            |
| 6   | GND out            | n.c.       |
| 7   | +24 V 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]

