Multifunction devices, electronic

LED multifunction display | Multifunctional – pulse, frequency, time (DC) | Codix 524
---|---|---

The Codix 524 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, 8 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.
- Inputs: 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: zero signal for position and count, zero speed monitoring, 1 Hz clock pulse for active time measurement.

### Order code

| 6.524 .01X .3X0 |

- **Output**
  - 1 = optocoupler
  - 2 = no output

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

**Delivery specification**
- Counter
- Mounting clip
- Front bezel for screw mounting (T009181) 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
## LED multifunction display

**Multifunctional – pulse, frequency, time (DC)**

### Codix 524

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Dimensions in mm [inch]</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adapter front bezel, 72 x 36 [2.83 x 1.42]</td>
<td>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</td>
<td>162704 Set</td>
</tr>
<tr>
<td>Adapter front bezel, 48 x 48 [1.89 x 1.89]</td>
<td>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]</td>
<td>2008883</td>
</tr>
<tr>
<td>Adapter front bezel, 60 x 50 [2.36 x 1.97]</td>
<td>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]</td>
<td>2003001</td>
</tr>
<tr>
<td>Transparent cover, lockable, IP65</td>
<td>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]</td>
<td>2003002</td>
</tr>
<tr>
<td>Sealing cover type K1, IP65</td>
<td>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]</td>
<td>2008301</td>
</tr>
<tr>
<td>Mounting frame with cut-out 50 x 25 [2.36 x 1.97]</td>
<td>for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 50 x 28 [2.00 x 1.10] and via separate adapter (T0008180) for counters 48 x 24 [1.89 x 0.94]</td>
<td>2000094</td>
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</table>

### Technical data

#### General technical data

| Display | 6 digits, red 7 segment LED display, 8 mm high |
| Data backup | EEPROM |
| Operating temperature | 10 ... 26 V DC  
> 26 ... 30 V DC  
-20°C ... +65°C [-4°F ... +149°F]  
-20°C ... +55°C [-4°F ... +131°F] (non-condensing) |
| Storage temperature | -25°C ... +70°C [-13°F ... +158°F] |

#### Electrical characteristics

| Power supply | 10 ... 30 V DC, with reverse polarity protection |
| Current consumption | max. 55 mA |
| EMC standards | EN 55011 class B, EN 61000-6-2, EN 61000-6-3 EN 61326-1 |
| UL approval | file E128604 |

#### Mechanical characteristics

| Housing | front panel mount 48 x 24 mm  
acc. to DIN 43700; RAL 7021, dark grey |
| Protection | IP65 (front side) |
| Weight | approx. 50 g [1.76 oz] |
| Vibration resistance acc. to EN 60068-2-6 | 10 ... 55 Hz / 1 mm [0.04”] / 30 min |
| Shock resistance acc. to EN 60068-2-27 | 10 G: 2 ms  
10 G: 6 ms |

#### Inputs

| Polarity of inputs | programmable, NPN or PNP |
| Input resistance | approx. 5 kΩ |
| Counting frequency | max. 60 kHz, can be damped to 30 Hz for position display max. 25 kHz |
| Display range | timer 0.001 s ... 999999 h  
frequency meter 1/min or 1/sec |
| Minimum pulse duration of the reset input | 5 ms |
| Input switching level (HTL) | LOW 0 ... 0.2 x U<sub>B</sub> [V DC]  
HIGH 0.6 x U<sub>B</sub> ... 30 V DC |
| Input switching level at 4 ... 30 V DC | LOW 0 ... 2 V DC  
HIGH 4 ... 30 V DC |
| Accuracy | tachometer < 0.1 %  
timer < 50 ppm |

#### Outputs (optional)

| Optocoupler output | max. 30 V, 10 mA |

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: www.kuebler.com/accessories.

1) Details see manual

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Multifunction devices, electronic

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### 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

### 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

### Terminal assignment

**PIN without optocoupler**

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<td>Emitter</td>
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### Block diagram

- **Power supply:** 10...30 V DC
- **Display**
- **Count input**
- **Reset input**
- **μ processor**
- **Optional output**
- **Keypad**

### Applications for multifunction display

- Counting tasks such as quantity and piece counting, measuring and recording of speed and of operating and processing times
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**LED multifunction display**  
**Multifunctional – pulse, frequency, time (DC)**  
**Codix 524**

**Dimensions**  
Dimensions in mm [inch]

![Diagram of LED multifunction display]

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

![Diagram of front bezel for clip mounting]

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

![Diagram of front bezel for screw mounting]

1 Countersinking A13, DIN 74

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