The multifunction preset counters Codix 923 / 924 can be used universally. These preset pulse counters, tachometers or preset timers with up to 6 presets can solve a wide variety of control and monitoring tasks in every application.

With their two-line display in 4 different versions the counters are very easy to read and simple to programme using the clearly laid-out decade keys. Complex control tasks can be carried out using a batch count or total count function.

**Multifunctional**
- Counter, tachometer and timer in one device.
- Can be used as a preset counter, batch counter, totalizer or position display with tracking preset.
- Relay or optocoupler outputs.
- Many different count modes for pulse inputs, time and frequency.
- Scalable input using multiplication and division factor
- Set value.
- Averaging, start delay (tachometer).
- Step or tracking presets (eliminate the need for reprogramming of the pre-signal).
- Multi-range power supply.

**Fast and user-friendly**
- Direct input of the presets via the front keys or via the Teach-In input.
- Fast installation thanks to plug-in screw terminals.
- Max. count frequency 65 kHz.
- Simultaneous display of the actual and of the preset value, or of the actual value and of the batch / totalizing counter.
- Annunciators for the displayed preset and for the output status.
- 3 predefined parameter settings.
- Direct entry into the programming.
- Minimal installation depth.
- 4-stage RESET modes.
- 3-stage key lockout.
- Multicolor display for improved differentiation.

**Order code**

- **Number of presets**
  - 3 = 1 preset
  - 4 = 2, 4 or 6 presets
- **Output**
  - 0 = relays
  - 1 = optocouplers (only $b = 4$)
- **LCD options**
  - 0 = no backlighting
  - 1 = green backlighting
  - 2 = LED look, negative, red backlighting
  - 3 = multicolor, negative red/green backlighting
- **Power supply**
  - 0 = 100...240 V AC, ±10 %
  - 2 = 24 V AC, ±10 %
  - 3 = 10...30 V DC
- **Input trigger level**
  - 0 = standard level (HTL)
  - A = 4...30 V DC level
- **Version**
  - 0 = standard 923/924
  - B = 6 optocoupler outputs
  - 924-6 (only $b = 1$)
  - C = 4 relay outputs
  - 924-4 (only $b = 0$)

**Stock types**
- 6.923.0100.000
- 6.923.0100.300
- 6.923.0101.000
- 6.923.0101.300
- 6.923.0102.000
- 6.923.0102.300
- 6.923.0103.000
- 6.923.0103.300
- 6.924.0100.000
- 6.924.0100.300
- 6.924.0101.000
- 6.924.0101.300
- 6.924.0102.000
- 6.924.0102.300
- 6.924.0103.000
- 6.924.0103.300

**Delivery specification**
- Preset counter
- Mounting clip
- 8 pin screw terminal
- 7 pin screw terminal
- Operating instructions

**Additional inputs, outputs or interface types on request**
- 6.923.0100.00C
- 6.923.0100.30C
- 6.924.0113.00B
- 6.924.0113.30B

**Notes**
1) 24 V AC on request
2) Not possible in 24 V AC.
## LCD preset counters

**Multifunctional – pulse, frequency, time – 1...6 presets (AC+DC)**  
**Codix 923 / 924**

### Accessories

<table>
<thead>
<tr>
<th>Dimensions in mm [inch]</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adapter front bezel, 55 x 55 [2.17 x 2.17]</td>
<td>for cut-out 50 x 50 [1.97 x 1.97] to cut-out 45 x 45 [1.77 x 1.77] with clip mounting for counters 48 x 48 [1.89 x 1.89]</td>
</tr>
<tr>
<td>Adapter front bezel, 60 x 75 [2.36 x 2.95]</td>
<td>for cut-out 50 x 50 [1.97 x 1.97] to cut-out 45 x 45 [1.77 x 1.77] with screw mounting for counters 48 x 48 [1.89 x 1.89]</td>
</tr>
<tr>
<td>Adapter front bezel, 72 x 72 mm [2.83 x 2.83]</td>
<td>for cut-out 68 x 68 [2.68 x 2.68] to cut-out 45 x 45 [1.77 x 1.77] (mating clip T009420 must be ordered separately)</td>
</tr>
</tbody>
</table>

### Sealing cover type K2, IP65

- Suitable for front bezel 75 x 60 [2.95 x 2.36] with screw mounting: transparent/black: G008303
- Key lockable: G008143, G008153

### Mounting frame

- Suitable for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 48 x 48 [1.89 x 1.89], 53 x 53 [2.09 x 2.09] and 55 x 55 [2.17 x 2.17]: chromated G300003

### Replacement parts

<table>
<thead>
<tr>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-pin connector</td>
</tr>
<tr>
<td>7-pin connector</td>
</tr>
<tr>
<td>5-pin connector</td>
</tr>
</tbody>
</table>

**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.**

## Technical data

### General technical data

| Display | Standard 2 line 2 x 6 digits LCD display positive green with optional backlighting, negative red backlighting upper line negative, red backlighting lower line negative, red or green backlighting (programmable) |
| Operating temperature | -20°C ... +65°C [-4°F ... +149°F] (non-condensing) |
| Storage temperature | -25°C ... +75°C [-13°F ... +167°F] |
| Humidity | at +40°C [104°F] RH 93 % (non-condensing) |
| Altitude | up to 2000 m [6562'] |

### Mechanical characteristics

| Protection | IP65 (front side) |
| Weight | approx. 125 g [4.41 oz] |

### Electrical characteristics

| Sensor power supply | AC (50/60 Hz) 100 ... 240 V AC ±10 %, max. 9.5 VA |
| DC 24 V AC ±10 %, max. 6 VA |
| 10 ... 30 V DC, max. 5.5 W |
| External fuse protection | 100 ... 240 V AC T 0.1 A |
| 24 V AC T 0.3 A |
| 10 ... 30 V DC T 0.2 A |

### Input modes

- **Pulse counters:** Count direction (cnt.dir), Difference (up.dn), Addition A+B (up.up), phase discriminator x1, x2, x4 (quad, quad x2, quad x4), Ratio (A/B), Ratio in % ((A-B)/A x100 %)
- **Frequency meter:** A, A-B, A+B quad, A/B, (A-B)/A x 100 %
- **Timer:** 4 Start modes: FrErun, Auto, InpA.InpB, InpB.InpA, InpB

### Sensor power supply

- AC supply 24 V DC ±15 %, 80 mA max. 80 mA, external power supply is connected through

### EMC standards

- EN55011 class B, EN 61000-6-2, EN 61000-6-3

### Device safety

- Designed to protection class application area EN61010 part 1
- Pollution level 2

### UL approval

- file E128604
Preset counters, electronic

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### LCD preset counters

#### Inputs
- **Count inputs**: A and B
- **Polarity of the inputs**: programmable for all inputs in common NPN/PNP
- **Input resistance**: 5 kΩ
- **Count frequency**: pulse counters tachometers max. 55 kHz, max. 65 kHz (details see manual) can be damped to 30 Hz (mechanical contacts)
- **Control / Reset input**: MPI, Lock, Gate, Reset
- **Min pulse duration of signal and control inputs**: 10 ms / 1 ms

#### Outputs
- **Switching voltage**: max. 250 V AC / 110 V DC
- **Switching current**: max. 3 A AC/DC, min. 30 mA DC
- **Switching capacity**: max. 750 VA / 90 W
- **Output 1**: (Relay closing contact, programmable as normally open (NO) or normally closed (NC))
  - Mech. service life (switching cycles): 2 x 10⁷
  - N° of switching cycles at 3 A / 250 V AC: 1 x 10⁵
  - N° of switching cycles at 3 A / 30 V DC: 1 x 10⁵
- **Output 2**: (Relay with changeover contact)
  - Mech. service life (switching cycles): 2 x 10⁷
  - N° of switching cycles at 3 A / 250 V AC: 5 x 10⁴
  - N° of switching cycles at 3 A / 30 V DC: 5 x 10⁴

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**Codix 924-4 and 924-6**

The preset counters 924-4 and 924-6 vary from the standard counters 923 and 924 as follows:

- Relay version: 924-4, 4 presets, 2 additional relays
- Optocoupler version: 924-6, 6 presets, 4 additional optocoupler outputs
- No tracking presets
- Presets 1 and 4 affect the batch or total counter
- Presets 2, 3, 5 and 6 (Type: 924-6) or presets 2 and 3 (Type 924-4) affect the main counter
- Preset 2 is the main preset; it triggers the automatic reset
- Preset 2 is likewise the main preset for all further counting modes (the other presets are pre-signals)

### Additional technical data Codix 924-4

#### Output 3
- **Relay with closing contact** (programmable as normally closed NC or normally open NO)
  - **Switching voltage**: max. 125 V AC / 110 V DC
  - **Switching current**: max. 1 A AC / 1 A DC, min. 1 mA AC/DC
  - **Switching capacity**: max. 62.5 VA / 30 W
  - **Mech. service life (switching cycles)**: 5 x 10²
  - **N° of switching cycles at 0.5 A / 125 V AC**: 1 x 10⁵
  - **N° of switching cycles at 1 A / 30 V DC**: 1 x 10⁵

#### Output 4
- **Relay with changeover contact**
  - **Switching voltage**: max. 125 V AC / 110 V DC
  - **Switching current**: max. 1 A AC / 1 A DC, min. 1 mA AC/DC
  - **Switching capacity**: max. 62.5 VA / 30 W
  - **Mech. service life (switching cycles)**: 5 x 10²
  - **N° of switching cycles at 1 A / 110 V AC**: 1 x 10⁵
  - **N° of switching cycles at 1 A / 30 V DC**: 1 x 10⁵

#### Reaction time of the outputs, Relay
- < 7 ms (only impulse and time counter)

### Additional technical data Codix 924-6

#### Output 1 ... 6
- **NPN optocouplers**
  - **Switching capacity**: 30 V DC / 10 mA
  - **Ucesat at IC = 10 mA**: 0.4 V
  - **Ucesat at IC = 5 mA**: 0.6 V
  - **Mech. service life (switching cycles)**: 2 x 10⁷
  - **N° of switching cycles at 3 A / 250 V AC**: 5 x 10⁴
  - **N° of switching cycles at 3 A / 30 V DC**: 5 x 10⁴

#### Reaction time of the outputs, optocouplers
- (only impulse and time counter)
  - Add/Sub/ with auto repeat A/B; (A-B)/A
  - Add/Sub: < 1 ms
  - A/B; (A-B)/A: < 1 ms
  - < 23 ms

#### Max. count frequency
- 50 kHz
## LCD preset counters

**Multifunctional – pulse, frequency, time – 1...6 presets (AC+DC)**

## Codix 923 / 924

### Terminal assignment

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal and control inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sensor power supply</td>
</tr>
<tr>
<td></td>
<td>AC: 24 V DC / 80 mA</td>
</tr>
<tr>
<td></td>
<td>DC: ( U_b ) interconnected</td>
</tr>
<tr>
<td>2</td>
<td>GND (0 V DC)</td>
</tr>
<tr>
<td>3</td>
<td>INP A (Signal input A)</td>
</tr>
<tr>
<td>4</td>
<td>INP B (Signal input B)</td>
</tr>
<tr>
<td>5</td>
<td>RESET (Reset input)</td>
</tr>
<tr>
<td>6</td>
<td>LOCK (Key locking input)</td>
</tr>
<tr>
<td>7</td>
<td>GATE (Gate input)</td>
</tr>
<tr>
<td>8</td>
<td>MPI (User input)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pin</th>
<th>Version with relays/optocouplers</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Relay contact C. / Collector</td>
</tr>
<tr>
<td>10</td>
<td>Relay contact N.D. / Emitter</td>
</tr>
<tr>
<td>11</td>
<td>Relay contact C. / Emitter</td>
</tr>
<tr>
<td>12</td>
<td>Relay contact N.D. / not assigned</td>
</tr>
<tr>
<td>13</td>
<td>Relay contact N.C. / Collector</td>
</tr>
<tr>
<td>14</td>
<td>AC: 24 V AC, 100...240 V AC, ±10 % N–DC: 10...30 V DC</td>
</tr>
<tr>
<td>15</td>
<td>AC: 24 V AC, 100...240 V AC, ±10 % L–DC: GND (0 VDC)</td>
</tr>
</tbody>
</table>

### Pin 924-4

<table>
<thead>
<tr>
<th>Pin</th>
<th>Additional connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Relay contact N.C.4 output 4</td>
</tr>
<tr>
<td>17</td>
<td>Relay contact C.4 output 4</td>
</tr>
<tr>
<td>18</td>
<td>Relay contact N.D.4 output 4</td>
</tr>
<tr>
<td>19</td>
<td>Relay contact N.D.3 output 3</td>
</tr>
<tr>
<td>20</td>
<td>Relay contact C.3 output 3</td>
</tr>
</tbody>
</table>

### Pin 924-6

<table>
<thead>
<tr>
<th>Pin</th>
<th>Additional connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Common-Emitter output 3 to 6</td>
</tr>
<tr>
<td>17</td>
<td>Collector 6 output 6</td>
</tr>
<tr>
<td>18</td>
<td>Collector 5 output 5</td>
</tr>
<tr>
<td>19</td>
<td>Collector 4 output 4</td>
</tr>
<tr>
<td>20</td>
<td>Collector 3 output 3</td>
</tr>
</tbody>
</table>

### Dimensions

Dimensions in mm [inch]

- 48 [1.89]
- 48 [1.89]
- 15.5 [0.61]
- 45 [1.77]
- 45 [1.77]
- 91 [3.583]
- 4,25 [0.167]
- 7 [0.276]
- max. 10,5 [0.413]
- 45±5° [1.77±0.2]
- Panel cut-out

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Preset counters, electronic

**Pulse counter**

**Functions / count modes:**
- Count with direction mode
- Difference mode
- Quadrature mode quad/quad2/quad4
- Add, Sub, automatic reset
- 2-input adding mode A+B
- Ratio measurement A/B
- Percentage difference measurement (A-B)/A x 100 %
- Batch counting
- Totalizer (overall total)
- Multiplication and division factor (up to 99.9999)
- Set value
- Step or tracking preset

**Application examples**

**CountDir + Add**
Roller shutter door with automatic shut-off

**Quad + Add**
Running direction and position on milling machines, Limit switch monitoring

**UpDown + Add**
Automatic subtraction of faulty or reject parts from the total piece count

**CountDir + Batch**
Logging of piece numbers and packing units plus control of replenishment of packing cartons

**UpUp + Add**
Adding up of two parallel or staggered production lines

**Quad + Add tot**
Cut-to-length with overall total count and control of the machine
Preset counters, electronic

**LCD preset counters**
Multifunctional – pulse, frequency, time – 1…6 presets (AC+DC)  Codix 923 / 924

### Frequency meter (tachometer)
**Functions / count modes:**
- A
- A – B
- A + B
- A / B
- (A – B) / A \times 100 \% (percentage display)
- Quad (phase discriminator with recognition of direction)
- Averaging
- Start delay
- 2nd tacho input
- Gate input
- Multiplication and division factor (up to 99.9999)

### Application examples

**A – B**
Synchro monitoring and control of two conveyor belts

**A/B**
Ratio measurement

**Quad**
Speed regulation with indication of direction

**Ratio measurement, e.g.**
for speed alignment

### Time and Hours-run meter (timer)
**Functions / count modes:**
- FrErurn (control via gate input)
- Auto (start via reset, stop at preset)
- InpB.InpB (start with first edge at InpB., stop with second edge InpB.)
- InpA. InpB (start with InpA., stop with InpB.)
- Totalizer (overall total)
- Batch counting
- Set value
- Step or tracking preset

### Application examples

**InpB. InpB**
Interval measurement

**InpA. InpB**
Run-time measurement

**FrErurn**
Measurement of overall time from switching on the conveyor belt till switching off

**Auto**
Time-controlled production line
Expandable hardware

Expandable on request via modules:
- 4 additional inputs
- Or 4 additional optocoupler outputs
- Or 2 additional relay outputs
- Or RS232/485 communications interfaces

Application examples
- Limit switch monitoring
- Special functions/PLC function
- Initiation of fixed program sequences
- Control of several processes
- Special protocols
- Print commands for logging

Customizable software

Individual customization of software to your application.
For example:
- Separate inputs for total counter and preset counter
- Separate scaling of input A and B
- Programmable measuring period for the tachometer
- Measurement of rotary speeds based on time
- Processing time, measurement of time based on frequency
- With the Multicolor version, the display color changes when reaching the preset, or blinking display with all versions