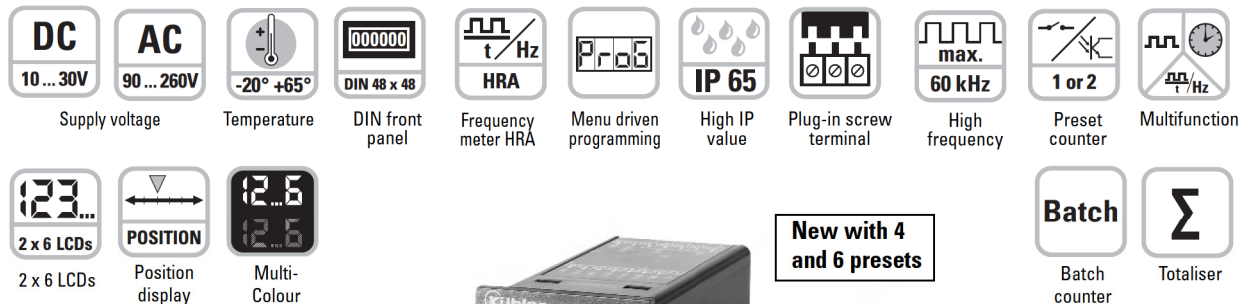


## LCD Preset Counters – Codix 923 (1 preset) / Codix 924 (2-6 presets)



**New with 4 and 6 presets**



### Multifunction:

- Counter, Tachometer and Timer – all in one device
- Can be used as preset counter, batch counter or totaliser (overall cumulative count)
- Presets: 923: 1, 924: 2, 924-4: 4, 924-6: 6
- Relay or optocoupler outputs
- Wide choice of count modes for pulse inputs, time or frequency
- Division factor, set value, averaging, start delay (Tachometer), step or tracking presets

### Fast:

- Direct input of the presets via the front keys or the Teach-In input
- Fast installation thanks to plug-in screw terminals
- Max. count frequency 60 kHz

### User-friendly:

- Simultaneous display of the actual value, presets, batch count or total count
- Annunciators for the displayed preset and for the output status
- 3 predefined settings for the most common parameter settings
- Direct entry into the programming
- Tracking presets eliminate the need for reprogramming of the pre-signal
- Minimum installation depth
- 4 stage RESET modes
- 3 stage key lockout
- Multicolour display for improved differentiation of the two values

### Technical data:

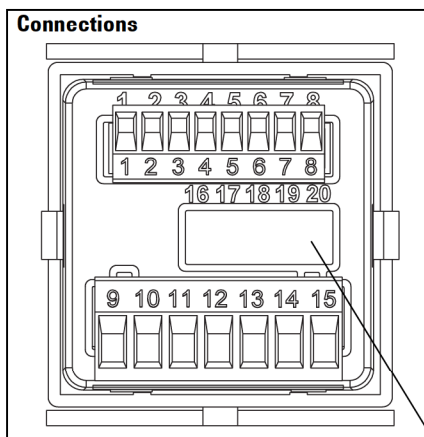
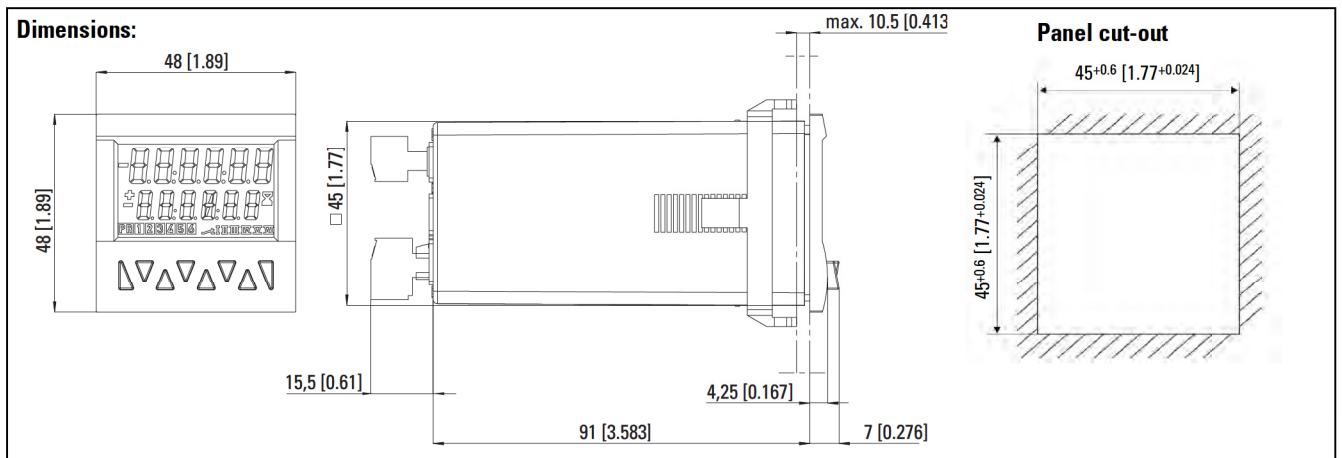
Supply voltage:	90 ... 260 V AC/max. 8 VA, 50/60 Hz, External fuse protection T 0,1 A 10 ... 30 V DC/max. 1,5 W External fuse protection T 0,2 A
Display:	2 line 2 x 6 digits LCD display, upper line 9 mm, lower line 7 mm, special signs 2 mm high Standard: positive green with optional backlighting LED Look: negative, red backlighting Multicolour: upper line negative, red backlighting lower line negative, red or green backlighting (programmable)
Data retention:	min. 10 years, EEPROM
<b>Inputs:</b>	
Count inputs:	A and B
Polarity of the inputs:	programmable for all inputs in common NPN/PNP
Input resistance:	5 kOhm
Count frequency:	max. 55 kHz (details see manual)
Monitoring/reset inputs:	MPI, lock, gate, reset
Min pulse duration of the inputs:	10 ms/1 ms
<b>Switching levels with AC-supply:</b>	
HTL-level	Low: 0 ... 4 V DC High: 12 ... 30 V DC
5 V-level	Low: 0 ... 2 V DC High: 3,5 ... 30 V DC
<b>Switching levels with DC-supply:</b>	
HTL-level	Low: 0 ... 0,2 x UB High: 0,6 x UB ... 30 V DC
5 V-level	Low: 0 ... 2 V DC High: 3,5 ... 30 V DC
Pulse shape:	variable, Schmitt-Trigger characteristics

<b>Output:</b>	Switching voltage max. 250 V AC/110 V DC
	Switching current max. 3 A AC/A DC
	Switching current min. 30 mA DC
	Switching capacity max. 750 VA/90 W
Output 1	Mech. service life (switching cycles) 2 x 10 <sup>7</sup> N° of switching cycles at 3 A/250 V AC 1 x 10 <sup>5</sup> N° of switching cycles at 3 A/30 V DC 1 x 10 <sup>5</sup>
Output 2	Relay closing contact, programmable as normally open (NO) or normally closed (NC) Mech. service life (switching cycles) 20 x 10 <sup>6</sup> N° of switching cycles at 3 A/250 V AC 5 x 10 <sup>4</sup> N° of switching cycles at 3 A/30 V DC 5 x 10 <sup>4</sup>
or npn optocoupler:	Relay with changeover contact switching power 30 V DC/10 mA U <sub>CESAT</sub> at IC = 10 mA: max. 2,0 V U <sub>CESAT</sub> at IC = 5 mA: max. 0,4 V
Reaction time of the outputs:	Relay: appr. 10 ms Optocoupler: appr. 1 ms, Details see instruction manual
Response time of the frequency counter:	100/600 ms, Details see instruction manual
<b>General:</b>	
Count modes:	
Pulse counter:	cnt.dir, up.dn, up.up, quad, quad 2, quad 4, A/B, (A-B)/A x 100%
Frequency counter:	A, A-B, A+B, quad, A/B, (A-B)/A x 100%
Timer:	FrErun, Auto, InpA.InpB., InpB.InpB.

## LCD Preset Counters – Codix 923 (1 preset) / Codix 924 (2 -6 presets)

### Technical Data:

Voltage supply for sensors:		EMC:	Emitted interference:	EN55011 Class B
AC supply	24 V DC± 15%, 80 mA		Immunity to interference:	EN61000-6-2
DC supply	max. 80 mA, external voltage supply is connected through	Device safety:	design to:	EN61010 Part 1
			protection:	Class: 2
Operating temperature:	-20 °C ... +65 °C		application area:	Soiling Level 2
Storage temperature:	-25 °C ... +75 °C	Protection:	IP65 (front)	
Humidity:	RH 93% at +40 °C, non-condensing	UL (applied for):	File-N°.: E128604	
Altitude:	2000 m	Weight:	approx. 125 g	



### Signal and control inputs

- 1 Sensor voltage supply  
AC: 24 VDC/80 mA  
DC: UB interconnected
- 2 GND (0 VDC)
- 3 INP A (Signal input A)
- 4 INP B (Signal input B)
- 5 RESET (Reset input)
- 6 LOCK (Key locking input)
- 7 GATE (Gate input)
- 8 MPI (User input)
- 16 ... 20:  
Additional optional inputs or outputs or interfaces

### Version with relays/optocouplers

- |  |                  |
|--|------------------|
| 9 Relay contact C./Collector             | } Output 1       |
| 10 Relay contact N.O./Emitter            |                  |
| 11 Relay contact C./Emitter              | } Output 2       |
| 12 Relay contact N.O./not assigned       |                  |
| 13 Relay contact N.C./ Collector         | } Supply voltage |
| 14 AC: 90..260 VAC N~<br>DC: 10..30 VDC  |                  |
| 15 AC: 90..260 VAC L~<br>DC: GND (0 VDC) |                  |

### Additional connections 924-4 and 924-6



#### 924-4

- 16 Relay contact N.C.4 Output 4
- 17 Relay contact C.4 Output 4
- 18 Relay contact N.O.4 Output 4
- 19 Relay contact N.O.3 Output 3
- 20 Relay contact C.3 Output 3

#### 924-6

- 16 Common Emitter Output 3 to 6
- 17 Collector 6 Output 6
- 18 Collector 5 Output 5
- 19 Collector 4 Output 4
- 20 Collector 3 Output 3

## LCD Preset Counters – Codix 924-4 (4 presets) / Codix 924-6 (6 presets)

### Characteristics that differ from standard counters Codix 923/924:

The preset counters 924-4 und 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.

### Technical Data:

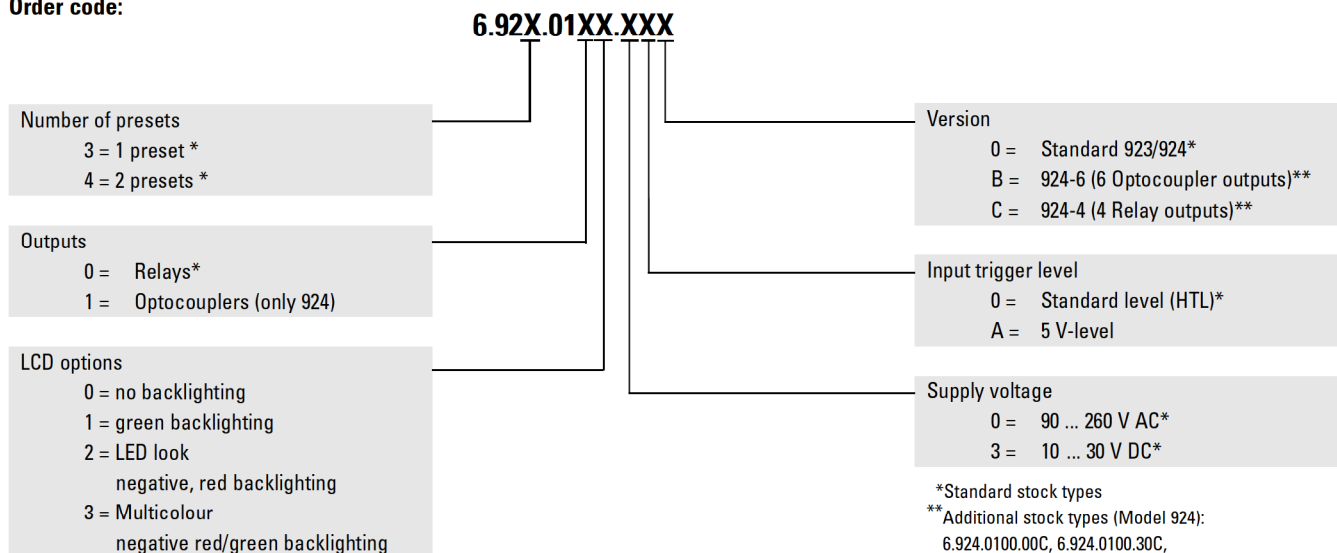
#### Addendum Codix 924-4

Output 3, Relay with closing 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)	5x10 <sup>7</sup>
N° of switching cycles at 0.5A/125 VAC	1x10 <sup>5</sup>
N° of switching cycles at 1 A/30 V DC	1x10 <sup>5</sup>
Output 4, Relay with changeover contact	
Switching voltage	max. 125 VAC/ 110 VDC
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)	5x10 <sup>7</sup>
N° of switching cycles at 1 A/110 V AC	1x10 <sup>5</sup>
Reaction time of the outputs: Relay (only impulse and time counter)	< 7 ms
Max. count frequency:	50 kHz

#### Addendum Codix 924-4

Output 1 to 6, NPN optocoupler	
Switching capacity:	30 V DC/10 mA
U <sub>CESAT</sub> at IC = 10 mA:	max. 2,0 V
U <sub>CESAT</sub> at IC = 5 mA:	max. 0,4 V
Output 3, 4, 5 and 6 with common emitter	
Reaction time of the outputs, optocoupler: (only impulse and time counter)	
Add/Sub/	< 1 ms
with auto repeat	< 1 ms
A/B ; (A-B)/A	< 23 ms
Max. count frequency:	50 kHz

### Order code:



\*Standard stock types

\*\*Additional stock types (Model 924):

6.924.0100.00C, 6.924.0100.30C,

6.924.0113.00B, 6.924.0113.30B

Options: Additional inputs, outputs or interface types on request.

### Accessories:

Adapter front bezel 55 x 55 mm for panel cut-out 50 x 50 mm

Order code: T00885

Gasket order code: N511004

Adapter front bezel 60 x 75 mm with screw fixing

Order code: T008860

Gasket order code: N511028

### Replacement parts:

8-pin connector 1 ... 8: N100498

7-pin connector 9 ... 15: N100548u002  
(for 923/924)

7-pin connector 9 ... 15: N100400u002  
(for 924-4/924-6)

5-pin connector 16 ... 20: N100399u002

### Delivery specification:

Preset counter

Mounting clip

8-pin screw terminal

7-pin screw terminal

Operating instructions

## Areas of application:

### ■ 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  $(A-B)/A \times 100\%$
- Batch counting
- Totaliser (Overall total)
- Multiplication and division factor (up to 99,9999)
- Set value
- Step or tracking preset

<h3>Application examples</h3>	<p><b>CountDir + Add</b> Roller shutter door with automatic shut-off</p>	<p><b>Quad + Add</b> Running direction and position on milling machines, Limit switch monitoring</p>
	<p><b>UpDown + Add</b> Automatic subtraction of faulty or reject parts from the total piece count</p>	<p><b>CountDir + Batch</b> Logging of piece numbers and packing units plus control of replenishment of packing cartons</p>
	<p><b>UpUp + Add</b> Adding up of two parallel or staggered production lines</p>	<p><b>Quad + Add tot</b> Cut-to-length with overall total count and control of the machine</p>

## Areas of application:

### ■ 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	<p><b>A - B</b> Synchro monitoring and control of two conveyor belts</p>	<p><b>Quad</b> Speed regulation with indication of direction</p>
	<p><b>A/B</b> Ratio measurement</p>	<p><b>(A-B)/A [%]</b> Ratio measurement, e.g. for speed alignment</p>

### ■ Time and Hours-run meter (Timer)

#### Functions/ Count modes

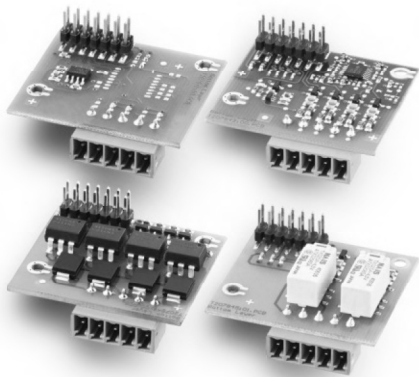
- FrErUn (Control via gate input)
- Auto (Start via Reset, Stop at Preset)
- InpB.InpB (Start with first edge at InpB., Stop with second edge InpB.)
- InpA. InpB (Start with InpA., Stop with InpB.)
- Totaliser (Overall total)
- Batch counting
- Set value
- Step or tracking preset

Application examples	<p><b>Interval measurement</b> InpB. InpB</p>	<p><b>FrErUn</b> Measurement of overall time from switching on the conveyor belt till switching off</p>
	<p><b>Run-time measurement</b> InpA. InpB.</p>	<p><b>Auto</b> Time-controlled production line</p>



**The technology platform for OEM applications:**

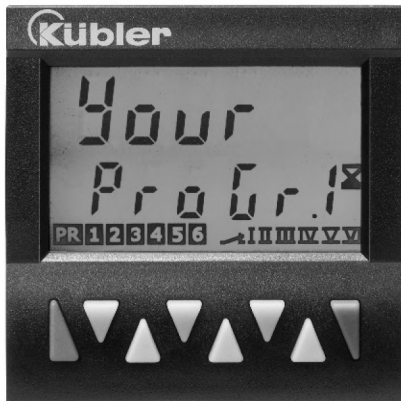
Expandable hardware



- Expandable on request via modules:
- 4 additional inputs
  - or 4 additional optocoupler outputs
  - or 2 additional relay outputs
  - or RS 232/485 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

Customisable software



Individual customisation 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 Multicolour version, the display colour changes when reaching the preset, or blinking display with all versions

Please talk to us – we look forward to solving your individual requirements in a close dialogue with you