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

DC 10 ... 30V — Supply voltage
AC 90 ... 260V — Supply voltage
-20° +65° — Temperature
DIN 48 x 48 — DIN front panel
t/Hz HRA — Frequency meter HRA
Prog — Menu driven programming
IP 65 — High IP value
Plug-in screw terminal
max. 60 kHz — High frequency
1 or 2 — Preset counter
Multifunction
2 x 6 LCDs
POSITION — Position display
Multi-Colour
Batch — Batch counter
Σ — Totaliser

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	
Inputs:		
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	
Switching levels with AC-supply:		
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
Switching levels with DC-supply:		
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	

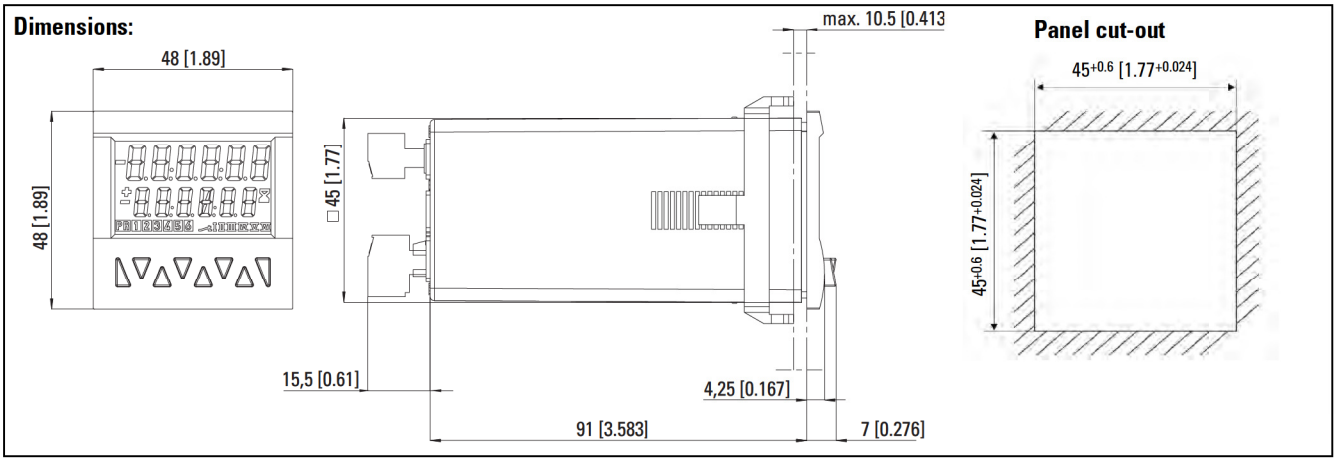
Output:	Switching voltage	max. 250 V AC/110 V DC
	Switching current	max. 3 A AC/A DC
	Switching current	min. 30 mA DC
	Switching capacity	max. 750 VA/90 W
Output 1	Mech. service life (switching cycles)	2×10^7
	N° of switching cycles at 3 A/250 V AC	1×10^5
	N° of switching cycles at 3 A/30 V DC	1×10^5
	Relay closing contact, programmable as normally open (NO) or normally closed (NC)	
Output 2	Mech. service life (switching cycles)	20×10^6
	N° of switching cycles at 3 A/250 V AC	5×10^4
	N° of switching cycles at 3 A/30 V DC	5×10^4
	Relay with changeover contact	
or npn optocoupler:	switching power	30 V DC/10 mA
	U_{CESAT} at IC = 10 mA:	max. 2,0 V
	U_{CESAT} 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	
General:		
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)

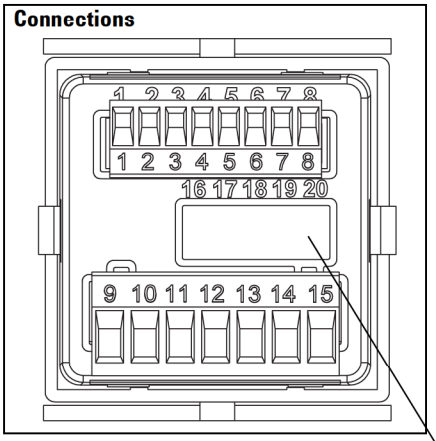
Technical Data:

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

Dimensions:



Connections



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
10 Relay contact N.O./Emitter
} Output 1

11 Relay contact C./Emitter
12 Relay contact N.O./not assigned
13 Relay contact N.C./ Collector
} Output 2

14 AC: 90..260 VAC N~
DC: 10..30 VDC
15 AC: 90..260 VAC L~
DC: GND (0 VDC)
} Supply voltage

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)		$5x10^7$
N° of switching cycles at 0.5A/125 VAC		$1x10^5$
N° of switching cycles at 1 A/30 V DC		$1x10^5$
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)		$5x10^7$
N° of switching cycles at 1 A/110 V AC		$1x10^5$
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_{CESAT} at IC = 10 mA:	max. 2,0 V
U_{CESAT} 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:

6.92X.01XX.XXX

Number of presets
3 = 1 preset *
4 = 2 presets *

Outputs
0 = Relays*
1 = Optocouplers (only 924)

LCD options
0 = no backlighting
1 = green backlighting
2 = LED look negative, red backlighting
3 = Multicolour negative red/green backlighting

Version
0 = Standard 923/924*
B = 924-6 (6 Optocoupler outputs)**
C = 924-4 (4 Relay outputs)**

Input trigger level
0 = Standard level (HTL)*
A = 5 V-level

Supply voltage
0 = 90 ... 260 V AC*
3 = 10 ... 30 V DC*

*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:

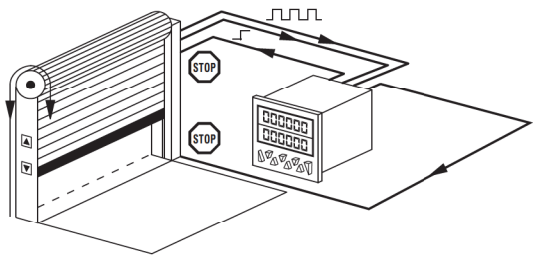
■ Pulse counter

Functions/ Count modes

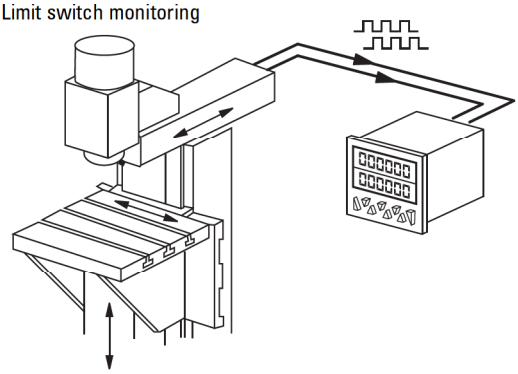
- Count with direction mode
- Difference mode
- Quadrature mode quad/quad2/quad4
- Add, Sub, automatic reset
- 2-input adding mode A+B
- Ratio measurement A/B
- Percentage difference measurement (A-B)/A x 100%
- Batch counting
- Totaliser (Overall total)
- Multiplication and division factor (up to 99,9999)
- Set value
- Step or tracking preset

Application examples

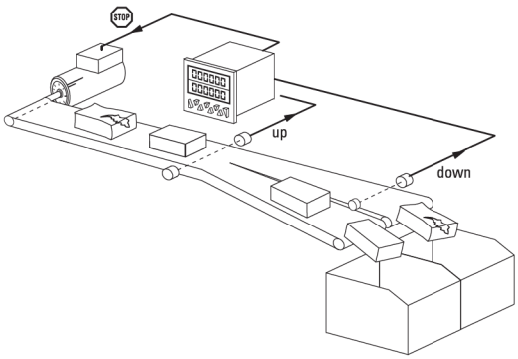
CountDir + Add
Roller shutter door with automatic shut-off



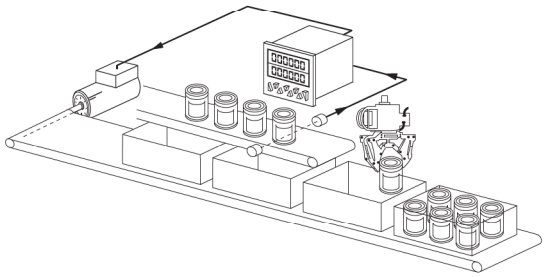
Quad + Add
Running direction and position on milling machines, Limit switch monitoring



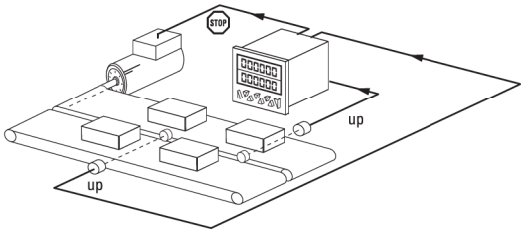
UpDown + Add
Automatic subtraction of faulty or reject parts from the total piece count



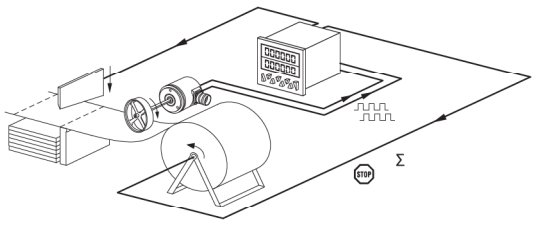
CountDir + Batch
Logging of piece numbers and packing units plus control of replenishment of packing cartons



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



Areas of application:

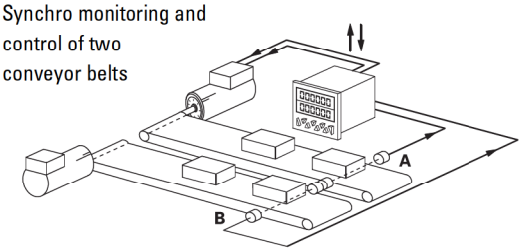
■ Frequency meter (Tachometer)

Functions/ Count modes

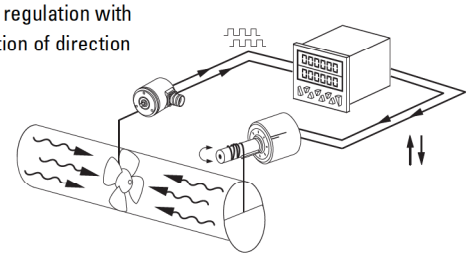
- A
- A – B
- A + B
- A / B
- (A – B) / A x 100 % (percentage display)
- Quad (phase discriminator with recognition of direction)
- Averaging
- Start delay
- 2nd tacho input
- Gate input
- Multiplication and division factor (up to 99,9999)

Application examples

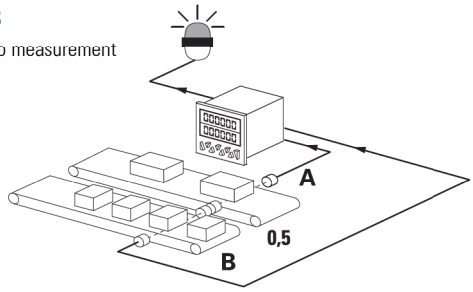
A – B
Synchro monitoring and control of two conveyor belts



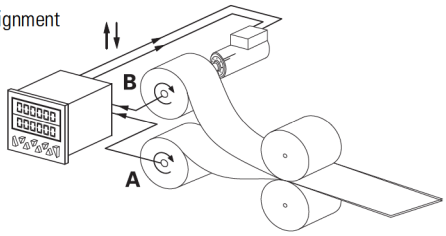
Quad
Speed regulation with indication of direction



A/B
Ratio measurement



(A-B)/A [%]
Ratio measurement, e.g. for speed alignment



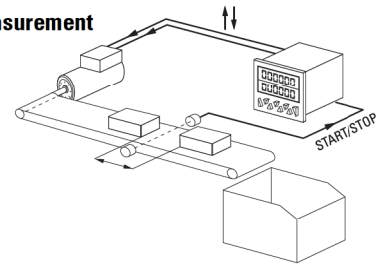
■ Time and Hours-run meter (Timer)

Functions/ Count modes

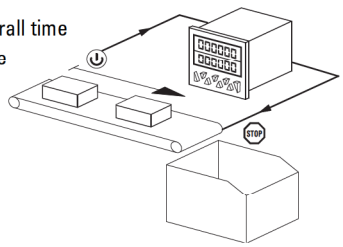
- FrErun (Control via gate input)
- Auto (Start via Reset, Stop at Preset)
- InpB.InpB (Start with first edge at InpB., Stop with second edge InpB.)
- InpA. InpB (Start with InpA., Stop with InpB.)
- Totaliser (Overall total)
- Batch counting
- Set value
- Step or tracking preset

Application examples

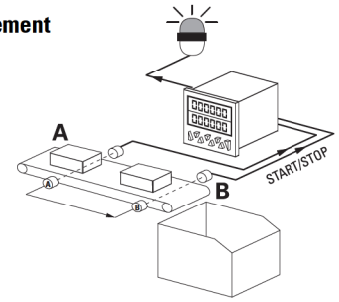
Interval measurement InpB. InpB



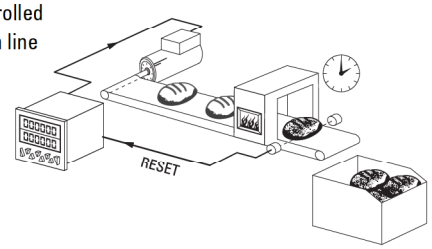
FrErun
Measurement of overall time from switching on the conveyor belt till switching off



Run-time measurement InpA. InpB.



Auto
Time-controlled production line



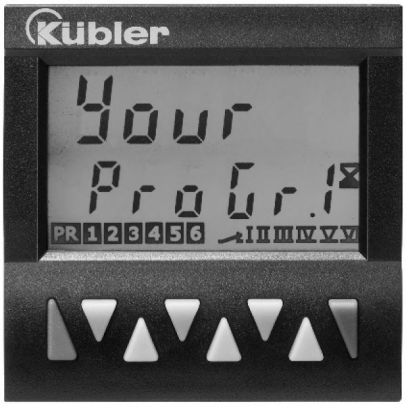
The technology platform for OEM applications:

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