Preset counters, electronic

Kübler

LED preset counters	Multifunctional – pulse, frequency, time – 65 kHz, 2 presets (AC+DC)	Codix 560

With its automatic help texts, clearly and legibly displayed on 14 LED segments, the Codix 560 preset counter takes the user effortlessly through the programming. The large user-friendly front keys can be operated even when wearing gloves.

The 14 mm high LED display ensures easy reading even from a long distance and in poor lighting conditions.

Now available also with RS232/RS485 interface and MODBUS and CR/LF protocol

DC 10 ... 30 V	**AC** 10 ... 240 V	-20°... +65°C	000000 DIN 96x48	Pro5	IP65	max. 65 kHz	Multifunctional	t / Hz HRA	Position
Supply voltage	Supply voltage	Temperature range	DIN front bezel	Menu-driven programming	High protection level	High count frequency	Multifunctional	Frequency display with HRA	Position display

A..Z LEDs	**Batch**	Σ	RS232/485
14 segment LED	Batch counter	Total counter	Optional interface

Multifunctional

- Counter, tachometer, timer and position display in one device.
- Can be used as preset counter, batch counter or total counter.
- 2 relays (change-over).
- Many different count modes.
- Scalable display.
- Set value, step or tracking preset.
- Multi-range supply voltage for AC or DC.
- Readable or configurable via RS232/485 interface via MODBUS or CR/LF protocol.
- Allows direct connection of a large display or printer.

User-friendly

- Automatic help texts, displayed in German and English.
- 14-segment LED for improved text representation.
- Status display of the presets.
- 3 predefined parameters.
- Tracking presets eliminate the need for reprogramming of the pre-signal.
- Minimum installation depth.
- 4-stage RESET modes.
- 3-stage keypad locking.
- Suitable for installation in mosaic systems.

Order code

6.560 . 010 . X X X
                              ⓐ ⓑ ⓒ

ⓐ *Supply voltage*
0 = 100 ... 240 V AC, ±10 % [1]
3 = 10 ... 30 V DC [1]

ⓑ *Input trigger levels*
0 = Standard level (HTL) [1]
A = 4...30 V DC level

ⓒ *Interface (optional)*
0 = None [1]
5 = RS232 (MODBUS or CR/LF)
7 = RS485 (MODBUS or CR/LF)

Delivery specification
· Preset counter
· Mounting clip
· Instruction manual

[1] Stock types

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Accessories / Mounting examples

Counter

Gasket
N511031
included in delivery)

panel
cut-out

Mounting clip
(included in delivery)
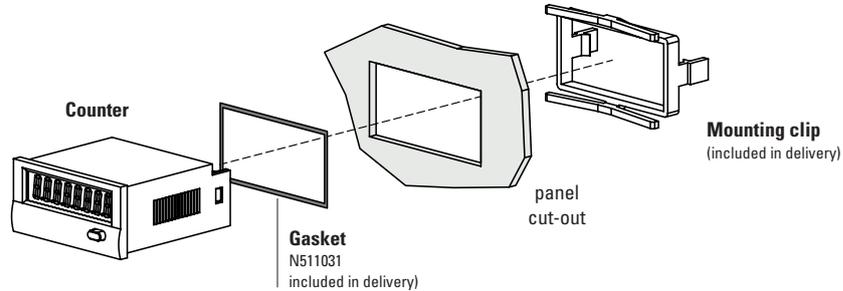
	Type / size	Description		Order no.	
Gasket counter		96 x 49 mm [3.78 x 1.93"]		N511031	
Mounting frame	**cut-out 92 x 45 mm [3.62 x 1.77"]**	for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	grey	G300005	

incl. in delivery

Technical data

General technical data

Display	6-digit red 14 segment LED display, 14 mm [0.55] high
Operating temperature	-20 °C … +65 °C [-4 °F … +149 °F] (non-condensing)
Storage temperature	-25 °C … +75 °C [-13 °F … +167 °F]
Relative humidity at +40 °C [+104 °F]	93 % (non-condensing)
Altitude	up to 2000 m [6562']

Mechanical characteristics

Protection	IP65 (from the front)
Weight	approx. 180 g [6.35 oz]

Electrical characteristics

Supply voltage	AC	100 … 240 V AC, ±10 % max. 11 VA, 50/60 Hz
	DC	10 … 30 V, max. 5.5 W
External fuse protection	230 V AC	T 0.1 A
	10 … 30 V DC	T 0.25 A
Data retention		> 10 years, EEPROM
Response time of the frequency meter		100 / 600 ms (details s. instruction manual)
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.InpB.
Sensor supply voltage	AC supply	24 V DC ±15 %, 80 mA
	DC supply	max. 80 mA, external power supply is connected through
Device safety	designed to	EN 61010 part 1
	protection class	2
	application area	pollution level 2

Preset counters, electronic

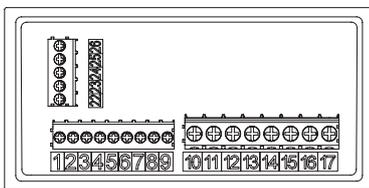| LED preset counters	Multifunctional – pulse, frequency, time – 65 kHz, 2 presets (AC+DC)	Codix 560

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	max. 55 kHz
	tachometers	max. 65 kHz can be damped to 30 Hz (mechanical contacts) (details s. instruction manual)
Control / Reset input		MPI 1 and MPI 2, 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
	4 ... 30 V DC: LOW:	0 ... 2 V DC
	HIGH:	3.5 ... 30 V DC
Switching levels with DC supply	HTL-level: LOW:	$0 ... 0.2 \times U_B$
	HIGH:	$0.6 \times U_B ... 30$ V DC
	4 ... 30 V DC: LOW:	0 ... 2 V DC
	HIGH:	3.5 ... 30 V DC
Pulse shape		variable, Schmitt-Trigger characteristics

Outputs

Switching voltage	max. 250 V AC / 150 V DC
Switching current	max. 3 A AC / DC min. 30 mA DC
Switching capacity	max. 750 VA / 90 W
Output 1 + 2 mech. service life (switching cycles) N° of switching cycles at 3 A / 250 V AC N° of switching cycles at 3 A / 30 V DC relay with changeover contact	2×10^7 5×10^4 5×10^4
Reaction time of the outputs (pulse / time)	13 ms (details s. instruction manual)

Optional interface MODBUS and CR/LF

Count frequency	max. 45 kHz (details s. instruction manual)
Interface	RS232, RS485
Baud rate	9600
Device address	1 ... 99, programmable

Approvals

UL compliant in accordance with	File no. E128604
CE compliant in accordance with EMC Directive RoHS Directive Low Voltage Directive	2014/30/EU 2011/65/EU 2014/35/EU
UKCA compliant in accordance with EMC Regulations RoHS Regulations Low Voltage Regulations	S.I. 2016/1091 S.I. 2012/3032 S.I. 2016/1101

Terminal assignment

Pin	RS232 (optional)
22	GND
23	RXD
24	TXD
25	–
26	–

Pin	RS485 (optional)
22	–
23	DO
24	DI
25	–
26	–

Pin	Signal and control inputs
1	INP A (Signal input A)
2	INP B (Signal input B)
3	RESET (Reset input)
4	LOCK (Keypad lock)
5	GATE (Gate input)
6	MPI 1 (User input 1)
7	MPI 2 (User input 2)
8	Sensor supply voltage AC: 24 V DC/80 mA DC: U_B connected through
9	Shared connection for signal and control inputs GND (0 VDC)

Pin	Version with relay/optocoupler
10	Relay contact C.2
11	Relay contact N.O.2
12	Relay contact N.C.2
13	Relay contact C.1
14	Relay contact N.O.1
15	Relay contact N.C.1
16	AC: 100 ... 240 V AC, ±10 %, N~ DC: 10 ... 30 V DC
17	AC: 100 ... 240 V AC, ±10 %, L~ DC: GND (0 V DC)
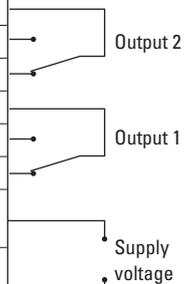
Preset counters, electronic

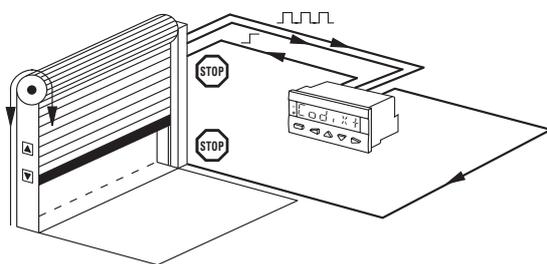| LED preset counters	Multifunctional – pulse, frequency, time – 65 kHz, 2 presets (AC+DC)	Codix 560

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
- Multi-range supply voltage for AC or DC

- 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
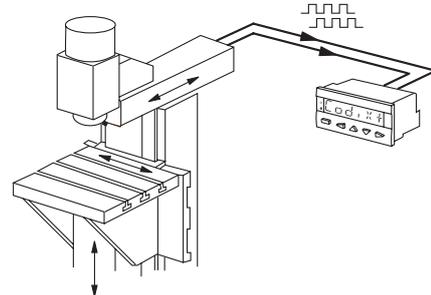
UpDown + Add

Automatic subtraction of faulty or reject parts from the total piece count
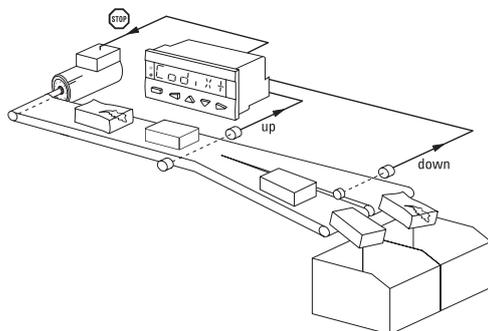
CountDir + Batch

Logging of piece numbers and packing units plus control of replenishment of packing cartons
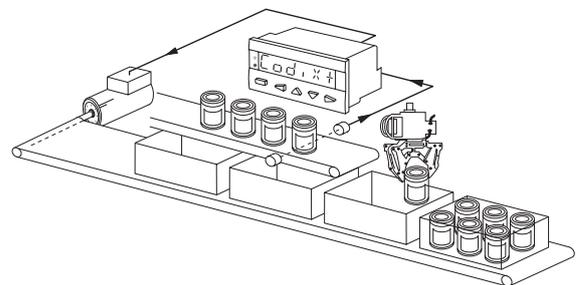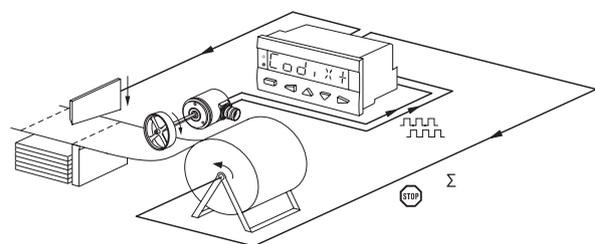

UpUp + Add

Adding up of two parallel or staggered production lines
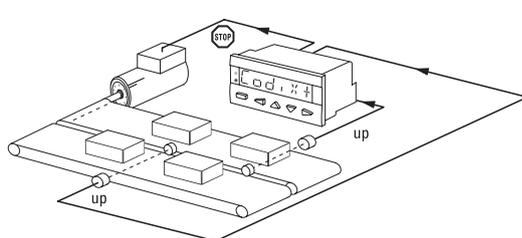
Quad + Add tot

Cut-to-length with overall total count and control of the machine

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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
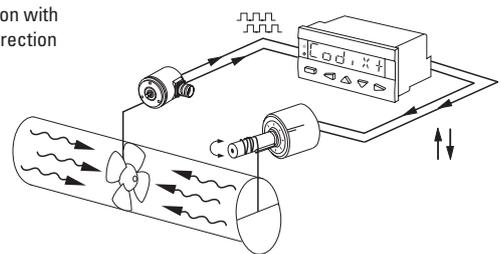- Multiplication and division factor (up to 99.9999)

Application examples

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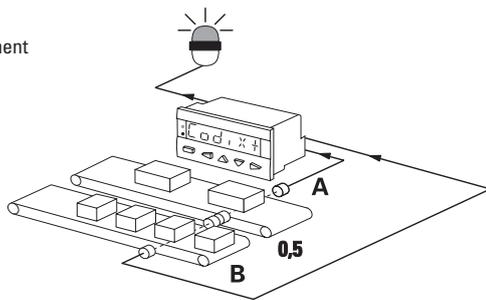
Synchro monitoring and control of two conveyor belts
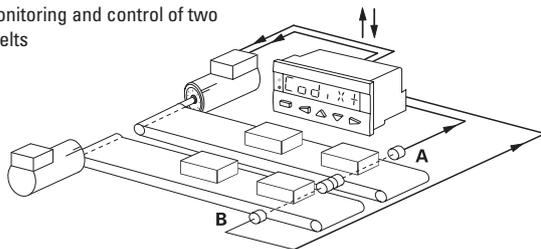
Quad

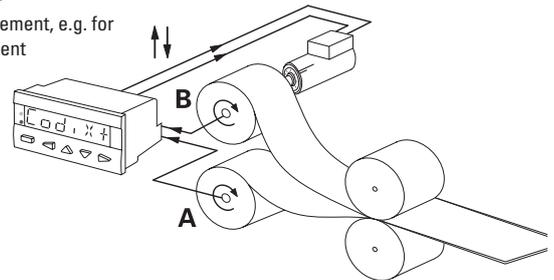Speed regulation with indication of direction

A/B

Ratio measurement

(A-B)/A [%]

Ratio measurement, e.g. for speed alignment
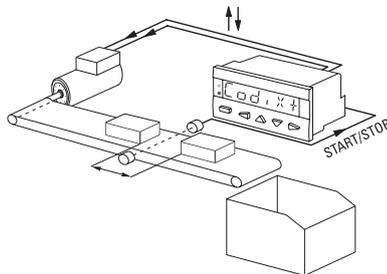

Time and hours-run meter (timer)

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.)

- Totalizer (overall total)
- Batch counting
- Set value
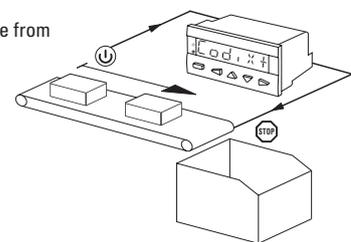- Step or tracking preset

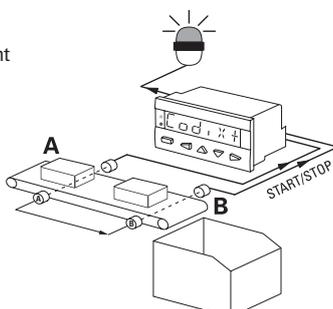## Application examples

InpB. InpB

Interval measurement

FrErun

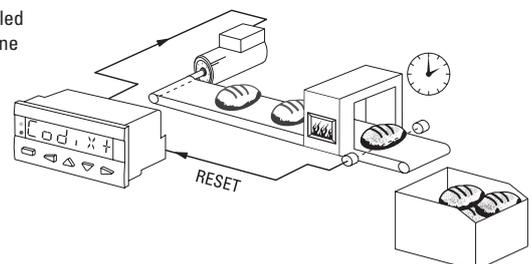Measurement of overall time from switching on the conveyor belt till switching off

InpA. InpB

Run-time measurement

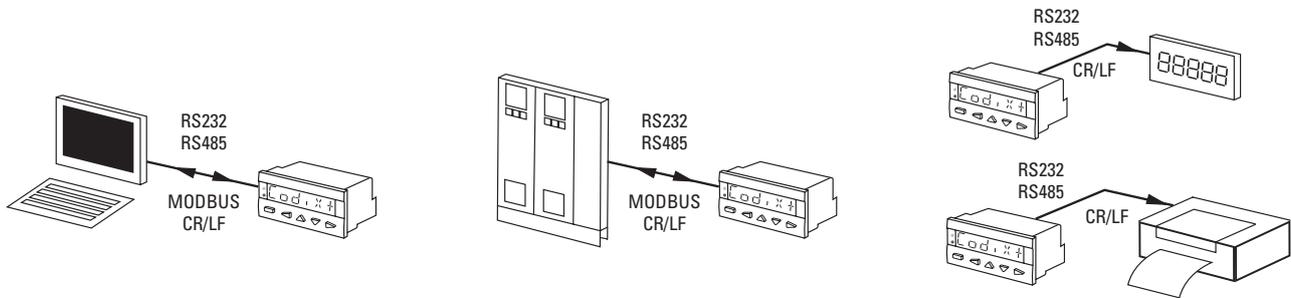### Auto

Time-controlled production line

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RS232 / RS485 interface (optional)

For connecting the counter to a PC, a PLC, a large display or a printer – for reading-out data or configuring the device.

RS232
RS485

RS232
RS485
CR/LF

RS232
RS485

MODBUS
CR/LF

RS232
RS485

MODBUS
CR/LF

RS232
RS485
CR/LF

Dimensions

Dimensions in mm [inch]

96 [3,77]

48 [1,88]

max.35 [1,38]

43 [1,69]

7,35 [0,29]

11,2 [0,44]

90,5 [3,56]

90 [3,54]

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

Panel cut-out

45 $^{-0,6}$ [1.77 $^{+0,024}$]

92 $^{+0,8}$ [3.622 $^{+0,031}$]