Электронные счетчики импульсов Codix, пневматические PMk

Технические характеристики

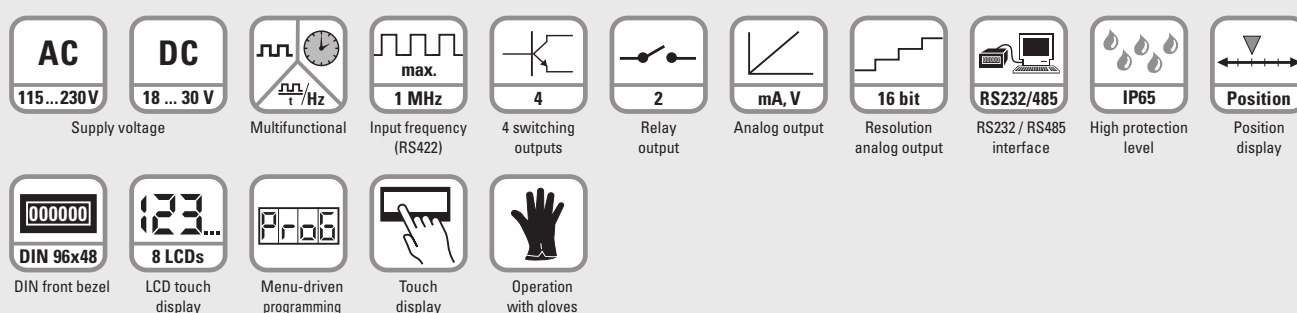По вопросам продаж и поддержки обращайтесь:

Multifunction devices, electronic

The multifunction preset counter 571T with its max. 250 kHz count frequency is ideal for fast counting tasks. It can also be used as a tachometer, short time meter, stop-watch or to measure machine cycle times or throughput times.

Output options include 4 limit values, analog output and RS232 or RS485 interface.

This device is thus able to carry out virtually all count, measurement and control tasks.

AC 115…230 V	Supply voltage
DC 18 … 30 V	Supply voltage
Multifunctional	
max. 1 MHz	Input frequency (RS422)
4	4 switching outputs
2	Relay output
mA, V	Analog output
16 bit	Resolution analog output
RS232/485	RS232 / RS485 interface
IP65	High protection level
Position	Position display
DIN 96x48	DIN front bezel
8 LCDs	LCD touch display
ProG	Menu-driven programming
	Touch display
	Operation with gloves

Characteristics

- Fast count input, works with our Limes measuring system (250 kHz/HTL, 1 MHz/RS422).
- 4 switching outputs to work as limit values (reaction time < 1 ms).
- Scalable analog output (reaction time < 150 ms), resolution 16 bit, -10 … +10 V, 0 … 20 mA or 4 … 20 mA.
- Serial interface RS232 or RS485 for reading data in and out.
- Sensor power supply 24 V DC / 150 mA (AC version) or U_B - 1 V / max. 250 mA (DC version).
- 96 x 48 mm DIN housing, IP65.
- Touch display with 8-digit display value and menu-driven programming.
- 2 relay outputs that can be assigned to the limit values.

Benefits

- AC and DC supply voltage in one unit.
- Measuring function can be programmed for RPM, speed, speed from elapsed time, machine cycle time, throughput time (reciprocal rotary speed), as well as numerous count and stop-watch functions.
- 4 switching outputs; can also be programmed as a tracking preset.
- Freely programmable.
- Large 13 mm high LCD display, 8-digit, with adjustable brightness. Tri-color – red / green / yellow – programmable.
- Display linearization with teach function.

Multifunctional display

Large-scale 4-digit display over the whole display surface.

2-line display modes for the simultaneous display of 2 separate measured or calculated values.

Color change of the display to green, yellow or red.

Multifunction devices, electronic

| LCD touch multifunction preset counters | Pulse, frequency, time (also reciprocal) – (AC+DC) | 571T |

Order code

6.571T . 01X . XXX
(a) (b)(c)(d)

(a) *Relay outputs*
0 = 2 relay outputs
2 = without output

(b) *Supply voltage*
3 = 18 ... 30 V DC
E = 18 ... 30 V DC + 115 ... 230 V AC

(c) *Further options*
0 = HTL count inputs (standard)
A = RS422 / HTL differential / HTL count inputs (option)

(d) *Electrical outputs*
0 = none
1 = RS232, 4 switching outputs
2 = RS232, 4 switching outputs, analog output
3 = RS485, 4 switching outputs
4 = RS485, 4 switching outputs, analog output

Delivery specification
· Display 571T
· Gasket
· Mounting kit
· Manual German/English

Accessories / Mounting examples

Counter

Mounting kit
350820
(included in delivery)

panel
cut-out

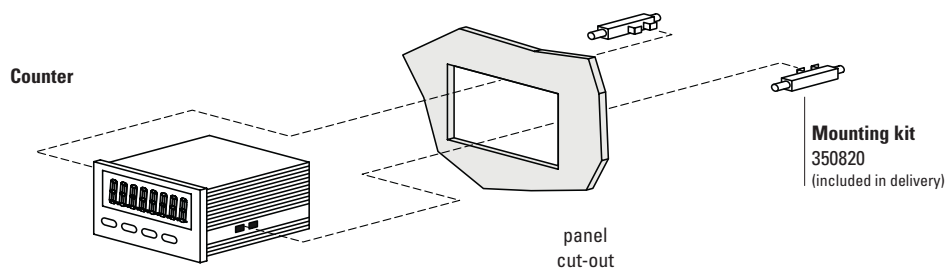|		Type / size	Description		Order no.	
Mounting kit			1 kit consists of 2 latch hooks		350820	
Mounting frame		cut-out **92 x 45 mm** [3.62 x 1.77"]	for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	grey	G300005	–
Software for parameter setting OSxx			https:///de/docu-finder search box: OS1			

incl. in delivery

Multifunction devices, electronic

| LCD touch multifunction preset counters | Pulse, frequency, time (also reciprocal) – (AC+DC) | 571T |

Technical data

General technical data

Display	LCD touch display, 13 mm high 8 decades + sign, 3-color
Operating temperature	-20 °C ... +60 °C [-4 °F ... +140 °F] (non-condensing)
Storage temperature	-25 °C ... +70 °C [-13 °F ... +158 °F]
Altitude	up to 2000 m [6562']

Electrical characteristics

Supply voltage	18 ... 30 V DC, with reverse polarity protection (rated voltage 24 V DC) 115 ... 230 V AC, 50/60 Hz (option)
Current consumption DC	100 mA, without load
Power consumption AC	approx. 3 VA, without load
Auxiliary voltage for sensors (with RS 422 switchable from 24 V DC to 5 V DC / 250 mA)	
AC supply	24 V DC ±15 %, 150 mA (up to +45 °C) 80 mA (from +46 °C)
DC supply	U_B - 1 V, 250 mA
Device safety designed to	EN 61010 part 1
protection class	2
application area	pollution level 2

Mechanical characteristics

Housing	ABS UL94–V-0
Weight	approx. 200 g
Protection	IP65 (front side) IP20 (rear side)
Terminals	max. 1.5 mm^2

Inputs

2 incremental inputs (A, B)

HTL (standard)		
pulse	Tri-State, PNP, NPN and Namur	
input frequency	max. 250 kHz	
input level	Low: 0 ... 3 V / High: 9 ... 30 V	
load	max. 6 mA / Ri > 5 kΩ / 470 pF	

4 incremental inputs (A, /A, B, /B)
RS422 / HTL differential / HTL PNP-NPN
(option)

input frequency	RS422:	max. 1 MHz
	HTL differential:	max. 500 kHz
	HTL:	max. 250 kHz
input level	RS422:	> 0.5 V
	HTL differential:	> 2 V
	HTL:	Low 0 ... 3 V / High 9 ... 30 V
load	max. 3 mA / Ri > 10 kΩ / 47 pF	

3 control inputs (Cnt 1 - 3)	PNP
input frequency	max. 10 kHz
input level	HTL: Low 0 ... 3 V / High 9 ... 30 V
load	max. 2 mA / Ri > 15 kΩ / 470 pF
Accuracy frequency	±1 ppm ±1 digit

Outputs (option)

4 switching outputs	5 ... 30 V DC/200 mA (PNP)
reaction time	< 1 ms
Interface	RS232 or RS485 Drivecom protocol / Modbus / Printer 9600 ... 38400 Baud
Analog output	-10 ... +10 V (max. 2 mA) or 0 ... 20 mA, 4 ... 20 mA (max. 270 Ω)
resolution	16 bit (15 bit + sign)
accuracy	±0.1 %
reaction time	< 150 ms
Relay output	2 changeover contacts (potential free) max. 250 V AC / 3 A / 750 VA max. 150 V DC / 2 A / 50 W
reaction time	< 20 ms

Approvals

CE compliant in accordance with

EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU
Low Voltage Directive	2014/35/EU

Kübler

LCD touch multifunction preset counters	Pulse, frequency, time (also reciprocal) – (AC+DC)	571T

**Terminal assignment
HTL
(standard)**

115 ... 230 V AC

Order option **b** = E

Relay outputs

Order option **a** = 0

91096

115 - 230 V ~	0 V ~	—	CO Rel. 1	NO Rel. 1	NC Rel. 1	CO Rel. 2	NO Rel. 2	NC Rel. 2						
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39

GND	24 V ⎓	GND	Aux. Out	Input A	—	Input B	—	GND	Ctrl. In 1	Ctrl. In 2	Ctrl. In 3	AGND	20 mA Out	+/- 10 V Out	GND	RxD / B	TxD / A	Com +	Ctrl. Out 1	Ctrl. Out 2	Ctrl. Out 3	Ctrl. Out 4
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

Switching outputs,
interface RS232 or RS485
analog output

Order option **d** = 2 (RS232)
= 4 (RS485)

Switching outputs,
interface RS232 or RS485

Order option **d** = 1 (RS232)
= 3 (RS485)

**Terminal assignment
RS422 / HTL differential / HTL
(option)**

115 ... 230 V AC

Order option **b** = E

Relay outputs

Order option **a** = 0

91113

115 - 230 V ~	0 V ~	—	CO Rel. 1	NO Rel. 1	NC Rel. 1	CO Rel. 2	NO Rel. 2	NC Rel. 2						
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39

GND	24 V ⎓	GND	Aux. Out	Input A	Input /A	Input B	Input /B	GND	Ctrl. In 1	Ctrl. In 2	Ctrl. In 3	AGND	20 mA Out	+/- 10 V Out	GND	RxD / B	TxD / A	Com +	Ctrl. Out 1	Ctrl. Out 2	Ctrl. Out 3	Ctrl. Out 4
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

Switching outputs,
interface RS232 or RS485
analog output

Order option **d** = 2 (RS232)
= 4 (RS485)

Switching outputs,
interface RS232 or RS485

Order option **d** = 1 (RS232)
= 3 (RS485)

Dimensions

Dimensions in mm [inch]

48 [1.89]

96 [3.78]

114 [4.49]

11 [0.43]

116 [4.57]

44 [1.73]

91 [3.58]

ABS UL94-V0

Panel cut-out
92 x 45 mm [3.62 x 1.77"]

Multifunction devices, electronic

| LED multifunction display | Multifunctional – pulse, frequency, time (AC+DC) | Codix 544 |

The Codix 544 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.

DC 10 … 30 V	AC 10 … 240 V	-20°… +65°C	IP65	Plug-in screw terminal	ProG	max. 60 kHz	Position	1/sec - 1/min	Timer	t / Hz HRA
Supply voltage		Temperature range	High protection level	Plug-in screw terminal	Menu-driven programming	Pulse counter/ Totalizer	Position display	Frequency meter/ tachometer	Timer	Frequency meter HRA

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, 14 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.
- AC or DC supply voltage.
- Inputs: as an alternative to the HTL inputs, devices are available with a 5 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

6.544 . 01X . XX0
          a   b c

ⓐ *Output*
1 = optocoupler
2 = no output

ⓑ *Supply voltage*
0 = 100 … 240 V AC, ±10 %
3 = 10 … 30 V DC

ⓒ *Input switching level*
0 = Standard (HTL)
A = 4 … 30 V DC

Delivery specification
· Digital display
· Mounting clip
· Gasket
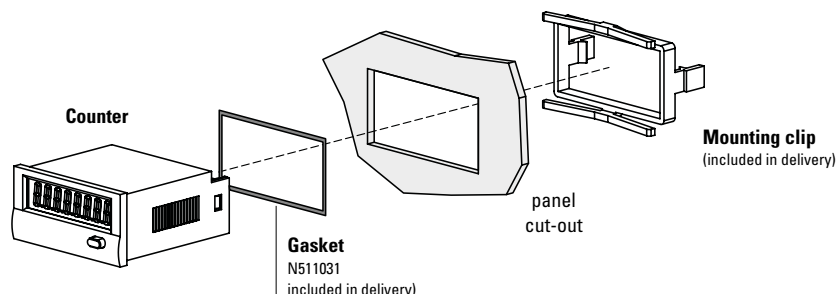· 2 plug-in screw terminals
· Instruction manual, multilingual

Stock types
6.544.012.000
6.544.012.300

Multifunction devices, electronic

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	–
Screw terminal (Replacement part)			1 ... 7, pitch 3.81	7 pin	N100387	
			1 ... 2, pitch 5.08	2 pin	N100133	

incl. in delivery

Technical data

General technical data

Display	6 digit, red 7 segment LED display; 14 mm [0.55"] high
Data backup	EEPROM
Operating temperature	-20 °C ... +65 °C [-4 °F ... +149 °F] (non-condensing)
Storage temperature	-25 °C ... +70 °C [-13 °F ... +158 °F]
Relative humidity	< 85 % (non-condensing)
Altitude	up to 2000 m [6562']

Electrical characteristics

Supply voltage		10 ... 30 V DC, with integrated reverse polarity protection 100 ... 240 V AC, ±10 %
Current consumption		max. 50 mA, 8 VA
Device safety	designed to	EN 61010 part 1
	protection class	2
	application area	pollution level 2

Mechanical characteristics

Housing	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 150 g [5.29 oz]

Outputs

Sensor supply voltage (AC version)	24 V DC ±15 %/100 mA
Optocoupler output	max. 30 V, 10 mA

Inputs

Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency [1]	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 standard version (HTL)		
DC supply voltage	LOW	$0 ... 0.2 \times U_B$ [V DC]
	HIGH	$0.6 \times U_B ... 30$ V DC
AC-supply voltage	LOW	0 ... 4 V DC
	HIGH	12 ... 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

Approvals

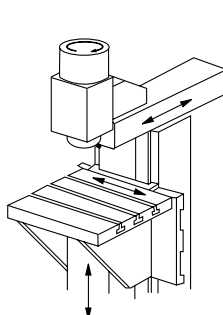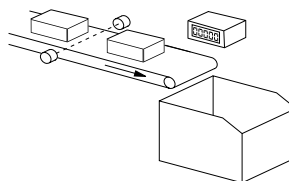|	
UL compliant in accordance with	File no. E128604
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU
Low Voltage Directive	2014/35/EU

1) Details see manual

Multifunction devices, electronic

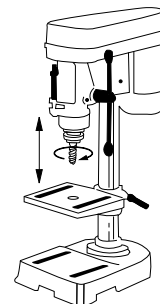| LED multifunction display | Multifunctional – pulse, frequency, time (AC+DC) | Codix 544 |

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.

Position or rotary speed on milling machine

Piece count on conveyor or production speed

Drilling machine head, speed or drilling depth

Functions

Pulse counter:
Various counting modes such as count direction, difference, addition, phase discriminator

Position display:
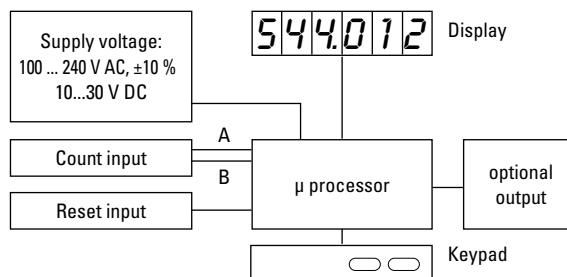Phase discriminator with simple, double or quadruple evaluation

Frequency and speed display:
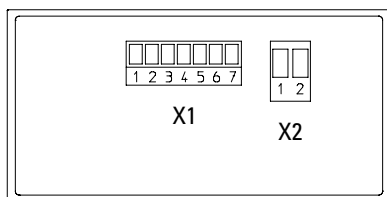Pulses per minute or per second scaleable, with HRA measurement

Hour meters and short-time meters:
Various programmable time ranges with different ways of measuring

Block diagram

Supply voltage:
100 ... 240 V AC, ±10 %
10...30 V DC

Display

Count input   A
Reset input   B

µ processor

optional output

Keypad

Terminal assignment

X1

X2

Connection X1

PIN	AC version	DC version
1	Optocoupler output	Emitter
2	Optocoupler output	Collector
3	Reset / Set	
4	INP B	
5	INP A	
6	GND out	n.c.
7	+24 V out	n.c.

Connection X2

PIN	AC version	DC version
1	100 ... 240 V AC, ±10 %	0 V DC (GND)
2	100 ... 240 V AC, ±10 %	10...30 V DC

LED multifunction display	Multifunctional – pulse, frequency, time (AC+DC)	Codix 544

Dimensions

Dimensions in mm [inch]

96 [3.78]

48 [1.89]

max. 19 [0.748]

44.9 x 91.9 [1.768 x 3.619]

15.5 [0.61]

4 [0.158]

6.5 [0.256]

67.1 [2.642]

Panel-cut-out

45$^{+0.6}$ [1.772$^{+0.024}$]

92$^{+0.8}$ [3.622$^{+0.032}$]

Pulse counters, electronic

Kübler

| LED pulse counters | 6 count modes (AC+DC) | Codix 541 |
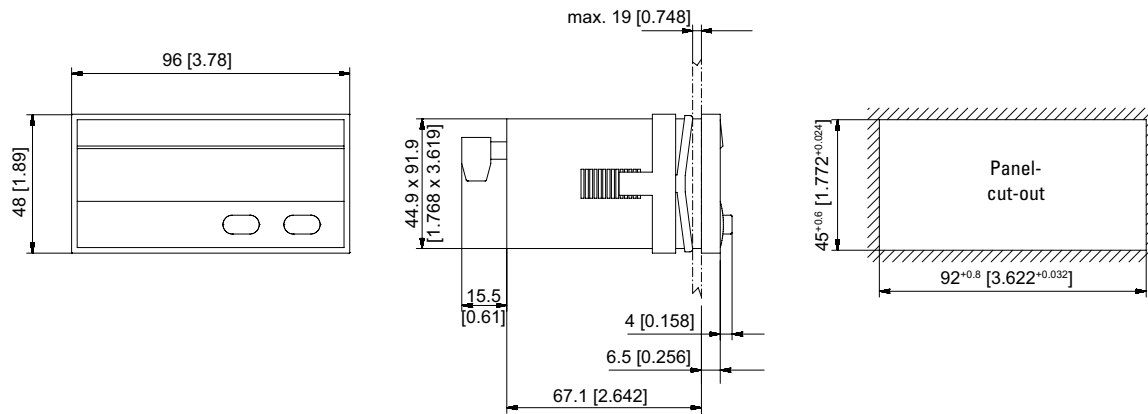
The Codix 541 is a voltage powered pulse counter / position display with 4 count input modes: count direction, difference, addition, quadrature (phase discriminator) x1, x2 and x4, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.

DC 10 ... 30 V	AC 100 ... 240 V	-20°... +65°C	IP65	max. 60 kHz	Position	1 2 1	1 2 1	1 3 4	1 2 3 4	
Supply voltage	Supply voltage	Temperature range	High protection level	Pulse counter/ Totalizer	Position display	Count with direction (DIR)	Differential count (up.dn)	Add/Add count (up.up)	Phase discriminator	Plug-in screw terminal

Powerful

- Fast count input – input frequency max. 60 kHz.
- Robust housing – IP65 protected.
- Very bright LED display, 14 mm high.
- Position, difference, adding or count direction detection:
  - programmable for positive (PNP) or 0V (NPN) switching input pulses.
  - fast count input with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts.
- 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.
- 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 or packaging units.
- 4 different count input modes: 2-channel count input for detecting count direction, difference or adding mode, quadrature with x1, x2 or x4 evaluation.
- Freely programmable setpoint.
- AC or DC supply voltage with sensor supply voltage.
- 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 - as zero signal.

Order code

6.541 . 01X . XX0
           (a)   (b)(c)

(a) *Output*
1 = Optocoupler output
2 = No output

(b) *Supply voltage*
0 = 100 ... 240 V AC, ±10 %
3 = 10 ... 30 V DC

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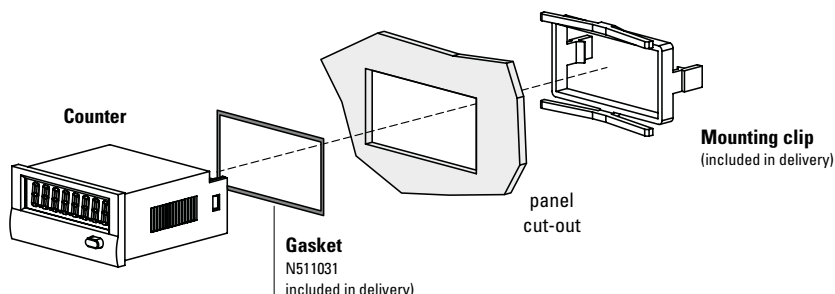0 = Standard level (HTL)
A = 4 ... 30 V DC

Delivery specification
· Digital display
· Mounting clip
· Gasket
· 2 screw terminals
· Instruction manual, multilingual

Stock types
6.541.012.300

LED pulse counters	6 count modes (AC+DC)	Codix 541

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	–
Screw terminal (Replacement part)			1 ... 7, pitch 3.81	7 pin	N100387	
			1 ... 2, pitch 5.08	2 pin	N100133	

incl. in delivery

Technical data

General technical data

Display	6 digits; red 7 segment LED display; 14 mm [0.55"] high
Data backup	EEPROM
Operating temperature	-20 °C ... +65 °C [-4 °F ... +149 °F] (non-condensing)
Storage temperature	-25 °C ... +70 °C [-13 °F ... +158 °F]
Relative humidity at +30 °C [+86 °F]	< 85 % (non-condensing)
Altitude	up to 2000 m [6562']

Electrical characteristics

Supply voltage	10 ... 30 V DC, with reverse polarity protection 100 ... 240 V AC, ±10 %
Current consumption	max. 50 mA, 8 VA
EMC standards	EN 55011 class B EN 61000-6-2, EN 61000-6-3
Device safety designed to protection class application area	EN 61010 part 1 2 pollution level 2
UL approval	file E128604

Mechanical characteristics

Housing	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 150 g [5.29 oz]

Inputs

Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency [1] at position display	max. 60 kHz, can be damped to 30 Hz max. 25 kHz
Minimum pulse duration of the reset input	5 ms

Input switching level standard version (HTL)

DC supply voltage	LOW	0 ... 0.2 x U_B (V DC)
	HIGH	0.6 x U_B ... 30 V DC
AC supply voltage	LOW	0 ... 4 V DC
	HIGH	12 ... 30 V DC

Input switching level at 4 ... 30 V DC

	LOW	0 ... 2 V DC
	HIGH	4 ... 30 V DC

Outputs

Supply voltage for sensors (AC version)	24 V DC ±15 %/100 mA
Output power optocouplers	max. 30 V DC, 10 mA

Approvals

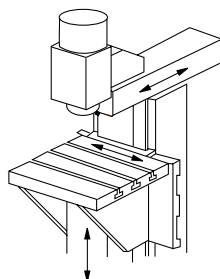|	
UL compliant in accordance with	File no. E128604
CE compliant in accordance with EMC Directive RoHS Directive Low Voltage Directive	2014/30/EU 2011/65/EU 2014/35/EU

1) Please refer to the manual.

Pulse counters, electronic

LED pulse counters	6 count modes (AC+DC)	Codix 541

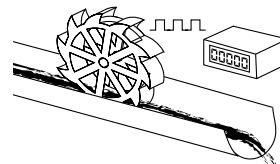### Applications for position displays and totalizers

- 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)
- Totalizing flow, quantity and other scalable media
- Counting tasks such as quantity and piece counting
- Accessories, OEM equipment or retrofitting to production machines
- Piece counting on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.
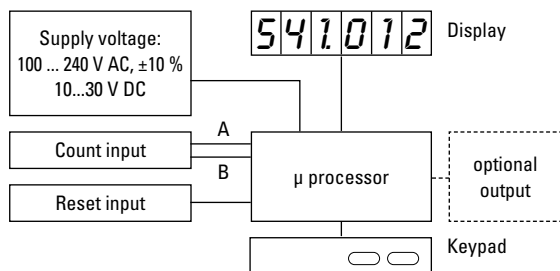
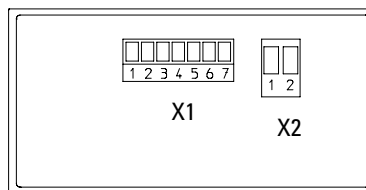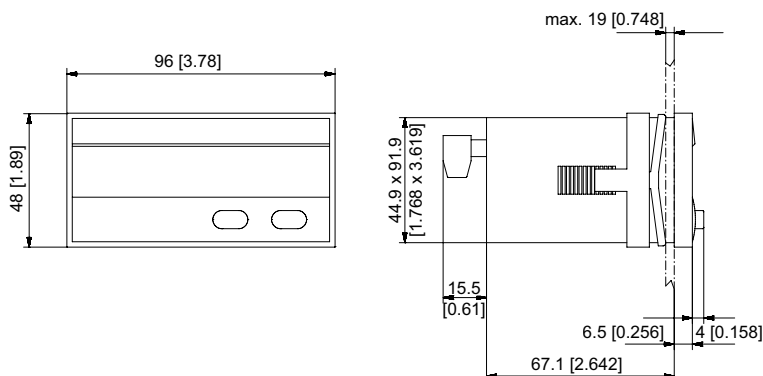Position on milling machine Position or quantity Flow rate

Block diagram

Supply voltage: 100 ... 240 V AC, ±10 % 10...30 V DC

Display 541.012

Count input — A

Reset input — B

µ processor

optional output

Keypad

Terminal assignment

X1 1 2 3 4 5 6 7 X2 1 2

Connection X1

PIN	AC version	DC version
1	Optocoupler-output Emitter	
2	Optocoupler-output Collector	
3	Set	
4	INP B	
5	INP A	
6	GND out	n.c.
7	+24 V DC out	n.c.

Connection X2

PIN	AC version	DC version
1	100 ... 240 V AC, ±10 %	0 V DC (GND)
2	100 ... 240 V AC, ±10 %	10...30 V DC

Dimensions

Dimensions in mm [inch]

96 [3.78]

48 [1.89]

max. 19 [0.748]

44.9 x 91.9 [1.768 x 3.619]

15.5 [0.61]

6.5 [0.256] 4 [0.158]

67.1 [2.642]

45$^{+0.6}$ [1.772$^{+0.024}$]

Panel cut-out

92$^{+0.8}$ [3.622$^{+0.032}$]

Pulse counters, electronic

LED pulse counters	Adding (AC+DC)	Codix 540

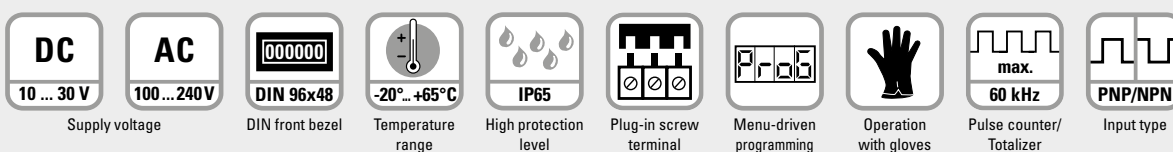**The Codix 540 is a simple voltage powered pulse counter for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.**

DC 10 ... 30 V	AC 100 ... 240 V	000000 DIN 96x48	-20°... +65°C	IP65	Plug-in screw terminal	ProG	Operation with gloves	max. 60 kHz	PNP/NPN
Supply voltage		DIN front bezel	Temperature range	High protection level	Plug-in screw terminal	Menu-driven programming	Operation with gloves	Pulse counter/ Totalizer	Input type

Powerful

- Fast count input – input frequency max. 60 kHz
- Robust housing – IP65 protected
- Very bright LED display, 14 mm high
- Simple totalizing and quantity counter
  - single channel count input and reset input
  - programmable for positive (PNP) or OV (NPN) switching input pulses
  - fast count input with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts
- 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
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt
- Programmable decimal point, can be set from 0.0 to 0.000
- Manual or electrical reset – tamper-proof due to lockable reset function
- AC or DC supply voltage with sensor supply voltage
- 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

Order code

6.540 . 012 . XX0
ⓐ ⓑ

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

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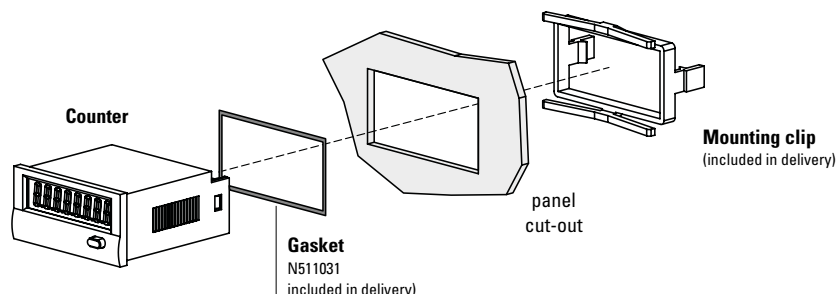0 = Standard (HTL)
A = 4 ... 30 V DC

Delivery specification
· Digital display
· Mounting clip
· Gasket
· Instruction manual, multilingual
· 2 screw terminals

Stock types
6.540.012.300

LED pulse counters	Adding (AC+DC)	Codix 540

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	–
Screw terminal (Replacement part)			1 ... 7, pitch 3.81	7 pin	N100387	
			1 ... 2, pitch 5.08	2 pin	N100133	

incl. in delivery

Technical data

General technical data

Display	6 digit, red 7 segment LED display; 14 mm [0.55"] high
Data backup	EEPROM
Operating temperature	-20 °C ... +65 °C [-4 °F ... +149 °F] (non-condensing)
Storage temperature	-25 °C ... +70 °C [-13 °F ... +158 °F]
Relative humidity at +30 °C [+86 °F]	< 85 % (non-condensing)
Altitude	up to 2000 m [6562']

Electrical characteristics

Supply voltage	10 ... 30 V DC, with reverse polarity protection 100 ... 240 V AC, ±10 %
Current consumption	max. 50 mA, 8 VA
Device safety	designed to EN 61010 part 1
	protection class 2
	application area pollution level 2

Mechanical characteristics

Housing	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 150 g [5.29 oz]

Inputs

Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency [1]	max. 60 kHz, can be damped to 30 Hz
Minimum pulse duration of the reset input	5 ms

Input switching level standard version (HTL)

DC supply voltage	LOW	$0 ... 0.2 \times U_B$ (V DC)
	HIGH	$0.6 \times U_B ... 30$ V DC
AC supply voltage	LOW	0 ... 4 V DC
	HIGH	12 ... 30 V DC

Input switching level at 4 ... 30 V DC

	LOW	0 ... 2 V DC
	HIGH	4 ... 30 V DC

Outputs

Voltage output for sensors (AC version)	24 V DC ±15 %/100 mA

Approvals

UL compliant in accordance with	File no. E128604
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU
Low Voltage Directive	2014/35/EU

1) For further specifications please refer to the manual.

Pulse counters, electronic

| LED pulse counters	Adding (AC+DC)	Codix 540

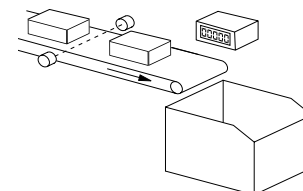## Applications for pulse counters / totalizers

- Simple count tasks such as quantity and piece counting
- Accessories, OEM equipment or retrofitting to production machines
- Piece counting on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.
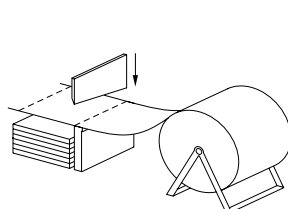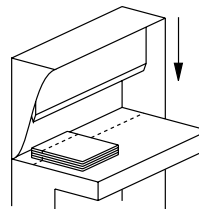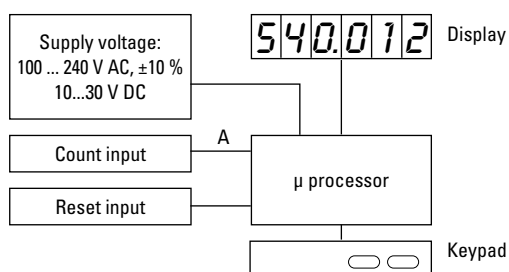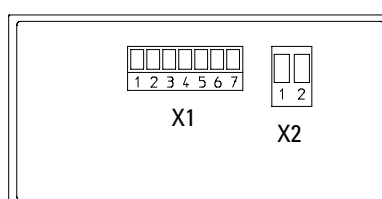
Piece-counting   Number of cuts   Piece-counting on conveyor

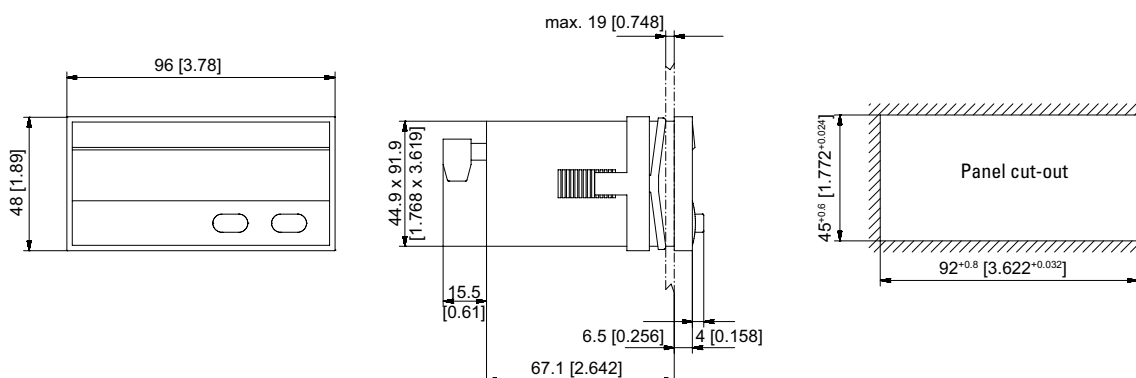## Block diagram

Terminal assignment

Connection X1

PIN	AC version	DC version
1	n.c	
2	n.c	
3	Reset	
4	n.c	
5	INP	
6	GND out	n.c.
7	+24 V DC out	n.c.

Connection X2

PIN	AC version	DC version
1	100 ... 240 V AC, ±10 %	0 V DC (GND)
2	100 ... 240 V AC, ±10 %	10 ... 30 V DC

Dimensions
Dimensions in mm [inch]

96 [3.78]

48 [1.89]

max. 19 [0.748]

44.9 x 91.9 [1.768 x 3.619]

15.5 [0.61]

6.5 [0.256]

4 [0.158]

67.1 [2.642]

45$^{+0.6}$ [1.772$^{+0.024}$]

92$^{+0.8}$ [3.622$^{+0.032}$]

Panel cut-out

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 for fast and slow counting pulses.

With 6-digit LED display for NPN / PNP input signals.

DC 10 ... 30 V	**000000** DIN 48x24	-20°... +65°C	IP65	ProG	max. 60 kHz	Position	1/sec - 1/min	Timer	t / Hz HRA
Supply voltage	DIN front bezel	Temperature range	High protection level	Menu-driven programming	Pulse counter/ Totalizer	Position display	Frequency meter/ tachometer	Timer	Frequency meter HRA

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 (T008181) 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
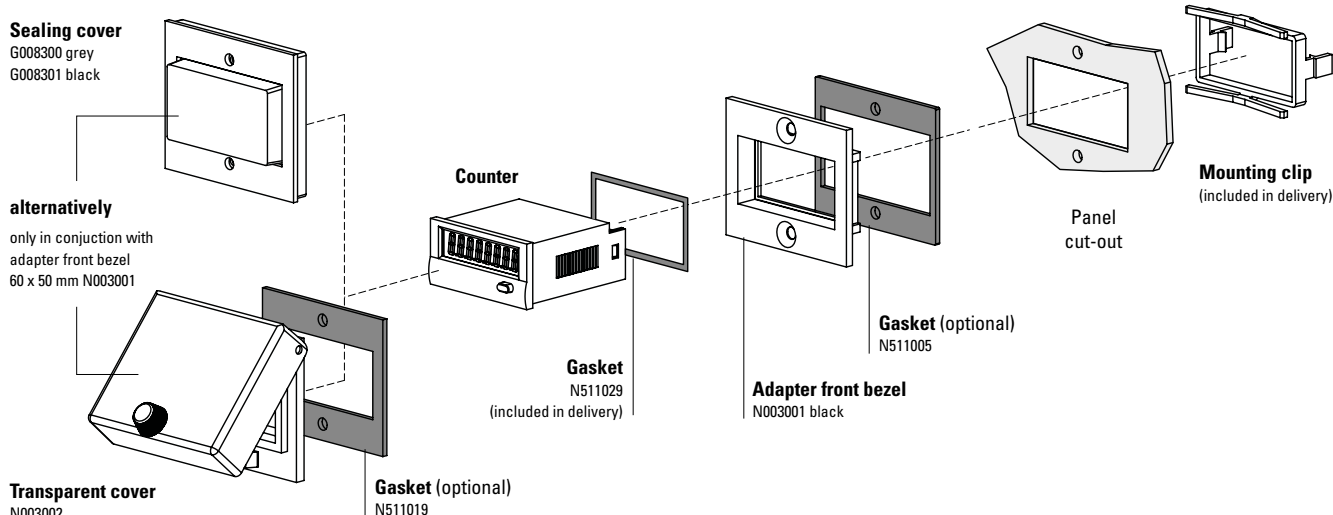- Instruction manual, multilingual

Stock types
6.524.012.300

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

Accessories / Mounting examples

Sealing cover
G008300 grey
G008301 black

alternatively

only in conjuction with
adapter front bezel
60 x 50 mm N003001

Transparent cover
N003002

Gasket (optional)
N511019

Counter

Gasket
N511029
(included in delivery)

Adapter front bezel
N003001 black

Gasket (optional)
N511005

Panel cut-out

Mounting clip
(included in delivery)

		Type / size	Description		Order no.	suitable gasket
Adapter front bezel		**53 x 28 mm** [2.09 x 1.10"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	**T008165**	**N511015**
				anthracite	T008180	
		56 x 40 mm [2.20 x 1.57"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	**T008161**	**N511045**
				anthracite	T008181	
		72 x 36 mm [2.83 x 1.42"]	for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	**162704Set**	–
		60 x 50 mm [2.36 x 1.97"]	for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	**N003001**	**N511005**
		48 x 48 mm [1.89 x 1.89"]	for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	**T008883**	–
Sealing cover IP65		**K1**	only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / grey	**G008300**	–
				transparent / black	**G008301**	
Transparent cover IP65		**1 Dv** (mounted on bezel)	cover lockable, for cut-out 54 x 29 mm [2.13 x 1.14"], only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / black	**N003002**	**N511019**
Gasket counter			48 x 24 mm (for installation in adapter front bezel)		N511029	
			49 x 25 mm		N511034	
Mounting frame		**cut-out 50 x 25 mm** [1.97 x 0.98"]	via adapter T008180 for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	**G300004**	–
Enclosure blind		**48 x 24 mm** [1.89 x 0.94"]	for cut-out 45 x 22.2 mm [1.77 x 0.94"] and cut-out 50 x 25 mm [1.97 x 0.98"]	anthracite	**G003836**	–

incl. in delivery

Multifunction devices, electronic

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

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	-20 °C ... +65 °C [-4 °F ... +149 °F]
	> 26 ... 30 V DC	-20 °C ... +55 °C [-4 °F ... +131 °F] (non-condensing)
Storage temperature		-25 °C ... +70 °C [-13 °F ... +158 °F]

Electrical characteristics

Supply voltage	10 ... 30 V DC, with reverse polarity protection
Current consumption	max. 55 mA

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	100 G: 2 ms 10 G: 6 ms

Outputs (optional)

Optocoupler output	max. 30 V, 10 mA

Inputs

Polarity of inputs		programmable, NPN or PNP
Input resistance		approx. 5 kΩ
Counting frequency [1]		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	$0 ... 0.2 \times U_B$ [V DC]
	HIGH	$0.6 \times U_B$ ... 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

Approvals

UL compliant in accordance with		File no. E128604
CE compliant in accordance with		
	EMC Directive	2014/30/EU
	RoHS Directive	2011/65/EU

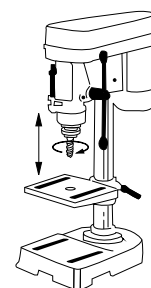## Applications for multifunction display

- 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

Position or rotary speed
on milling machine

Piece count on conveyor
or production speed

Drilling machine head,
speed or drilling depth

[1] Details see manual

Multifunction devices, electronic

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

Functions

Pulse counter:
Various counting modes such as count direction, difference, addition, phase discriminator

Position display:
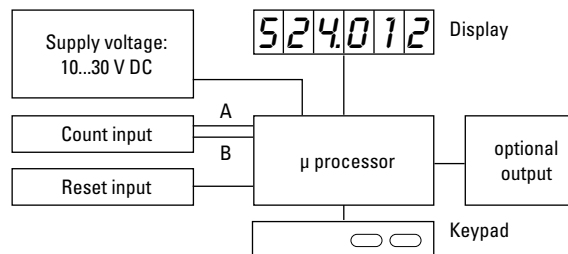Phase discriminator with simple, double or quadruple evaluation

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

Block diagram

```
┌─────────────────┐      ┌─────────────────┐
│ Supply voltage: │      │  5 2 4 . 0 1 2  │  Display
│   10...30 V DC  │      └─────────────────┘
└─────────────────┘
                    A  ┌──────────────┐   ┌──────────────┐
┌─────────────────┐    │              │   │   optional   │
│   Count input   │    │  µ processor │   │    output    │
└─────────────────┘ B  │              │   └──────────────┘
┌─────────────────┐    │              │
│   Reset input   │    └──────────────┘
└─────────────────┘    ┌──────────────┐
                       │  ⬭  ⬭        │  Keypad
                       └──────────────┘
```

Terminal assignment

1	2	3	4	5

PIN	without optocoupler
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset / Set

1	2	3	4	5	6	7

PIN	with optocoupler (NPN)
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset / Set
6	Emitter
7	Collector

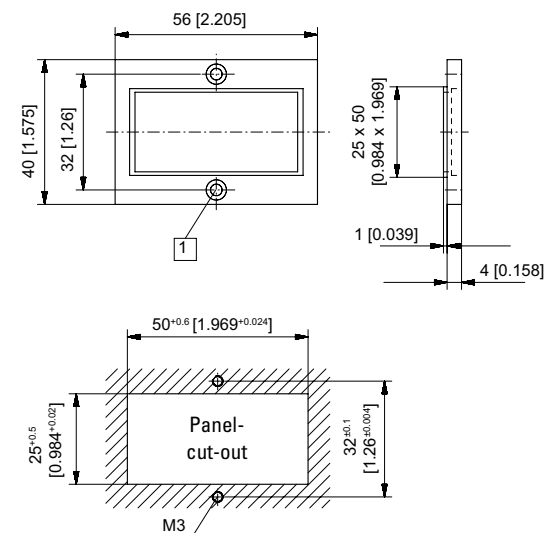| LED multifunction display | Multifunctional – pulse, frequency, time (DC) | Codix 524 |

Dimensions

Dimensions in mm [inch]
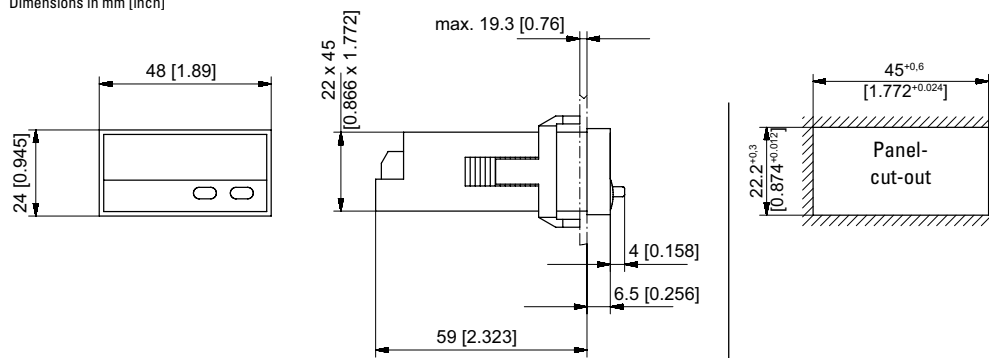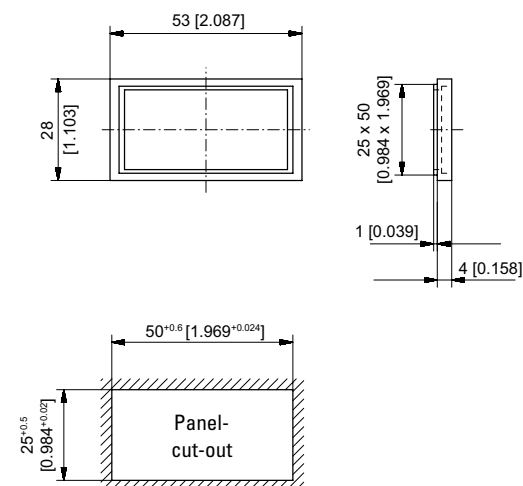
Front bezel for clip mounting (included in delivery)

Front bezel for screw mounting (included in delivery)

1 Countersinking Af3, DIN 74

Pulse counters, electronic

LED pulse counters	6 count modes (DC)	Codix 521

The Codix 521 is a voltage powered pulse counter / position display for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.

Equipped with 4 count input modes: count direction, difference, addition, quadrature (phase discriminator) x1, x2 and x4.

DC 10 ... 30 V	DIN 48x24	-20°... +65°C	IP65	ProG	max. 60 kHz	Position	1 2 1	1 2 1	1 3 4	1 2 3 4
Supply voltage	DIN front bezel	Temperature range	High protection level	Menu-driven programming	Pulse counter/ Totalizer	Position display	Count with direction (DIR)	Differential count (up.dn)	Add/Add count (up.up)	Phase discriminator

Powerful

- Fast count input – input frequency max. 60 kHz.
- Robust housing – IP65 protected.
- Very bright LED display, 8 mm high.
- Position, difference, adding or count direction detection
  - programmable for positive (PNP) or 0V (NPN) switching input pulses.
  - fast count input with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts.
- 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

- Large keys – can also be operated when wearing gloves.
- 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 or packing units.
- 4 different count input modes: 2-channel count input for detecting count direction, difference or adding mode, quadrature with x1, x2 or x4 evaluation.
- Freely programmable setpoint.
- 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 - as zero signal.

Order code

6.521 . 01X . 3X0
ⓐ ⓑ

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

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

Delivery specification
· Counter
· Mounting clip
· Front bezel for screw mounting (T008181) 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"]
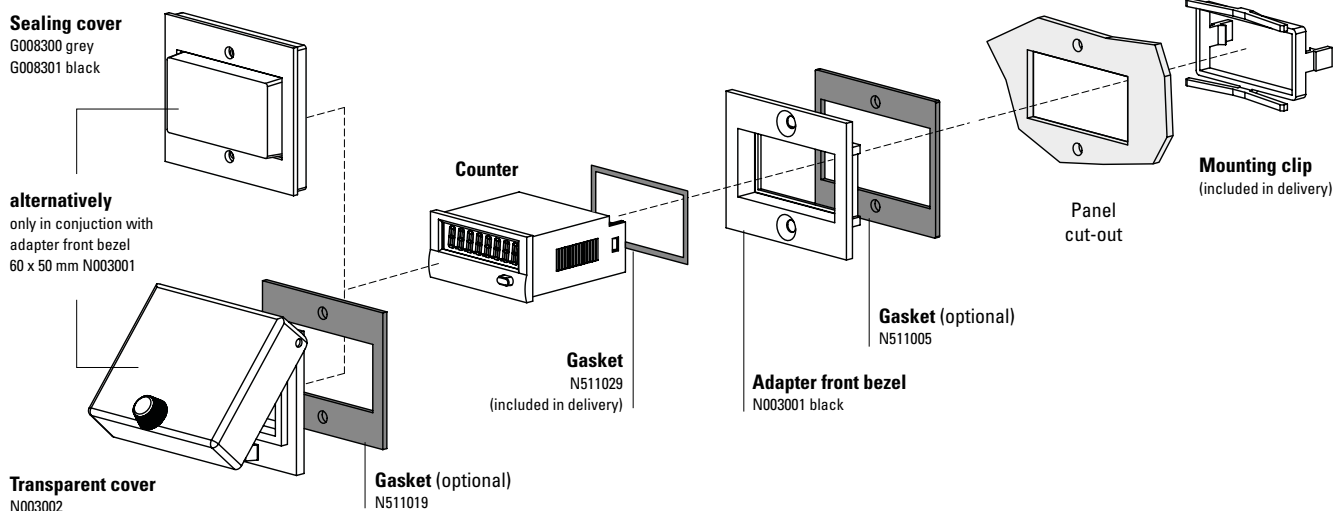· Gasket
· Instruction manual, multilingual

Stock types
6.521.012.300

LED pulse counters | 6 count modes (DC) | Codix 521

Accessories / Mounting examples

Sealing cover
G008300 grey
G008301 black

alternatively
only in conjuction with
adapter front bezel
60 x 50 mm N003001

Transparent cover
N003002

Counter

Gasket
N511029
(included in delivery)

Gasket (optional)
N511019

Adapter front bezel
N003001 black

Gasket (optional)
N511005

Panel cut-out

Mounting clip
(included in delivery)

		Type / size	Description		Order no.	suitable gasket
Adapter front bezel		**53 x 28 mm** [2.09 x 1.10"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black anthracite	**T008165** T008180	**N511015**
		56 x 40 mm [2.20 x 1.57"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black anthracite	**T008161** T008181	**N511045**
		72 x 36 mm [2.83 x 1.42"]	for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	**162704Set**	–
		60 x 50 mm [2.36 x 1.97"]	for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	**N003001**	**N511005**
		48 x 48 mm [1.89 x 1.89"]	for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	**T008883**	–
Sealing cover IP65		K1	only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / grey / transparent / black	**G008300** **G008301**	–
Transparent cover IP65		1 Dv (mounted on bezel)	cover lockable, for cut-out 54 x 29 mm [2.13 x 1.14"], only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / black	**N003002**	**N511019**
Gasket counter			48 x 24 mm (for installation in adapter front bezel) 49 x 25 mm		N511029 N511034	
Mounting frame		cut-out **50 x 25 mm** [1.97 x 0.98"]	via adapter T008180 for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	**G300004**	–
Enclosure blind		**48 x 24 mm** [1.89 x 0.94"]	for cut-out 45 x 22.2 mm [1.77 x 0.94"] and cut-out 50 x 25 mm [1.97 x 0.98"]	anthracite	**G003836**	–

incl. in delivery

LED pulse counters	**6 count modes (DC)**	**Codix 521**

Technical data

General technical data

Display		6 digits, red 7 segment LED display; 8 mm [0.32"] high
Data backup		EEPROM
Operating temperature	10 ... 26 V DC	-20 °C ... +65 °C [-4 °F ... +149 °F]
	> 26 ... 30 V DC	-20 °C ... +55 °C [-4 °F ... +131 °F] (non-condensing)
Storage temperature		-25 °C ... +70 °C [-13 °F ... +158 °F]

Electrical characteristics

Supply voltage	10 ... 30 V DC, with reverse polarity protection
Current consumption	max. 55 mA

Mechanical characteristics

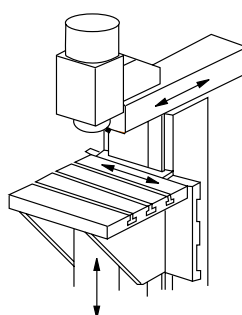|	
Housing	front panel mount 48 x 24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g [1.76 oz]
Vibration resistance acc. to EN 60068-2-6	10 ... 55 Hz / 1 mm [0.04"] / 30 min
Shock resistance acc. to EN 60068-2-27	100 G: 2 ms
	10 G: 6 ms

Inputs

Polarity of inputs		programmable, NPN or PNP for all inputs
Input resistance		approx. 5 kΩ
Counting frequency		max. 60 kHz, can be damped to 30 Hz; for position display max. 25 kHz
Minimum pulse duration of the reset input		5 ms
Input switching level (HTL)		
	LOW	$0 ... 0.2 \times U_B$ (V DC)
	HIGH	$0.6 \times U_B ... 30$ V DC
Input switching level at 4 ... 30 V DC		
	LOW	0 ... 2 V DC
	HIGH	4 ... 30 V DC

Approvals

UL compliant in accordance with		File no. E128604
CE compliant in accordance with		
	EMC Directive	2014/30/EU
	RoHS Directive	2011/65/EU

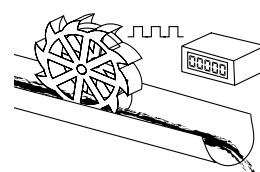## Applications for position displays / totalizers

- 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)
- Totalizing flow, quantity and other scalable media
- Counting tasks such as quantity and piece counting
- Accessories, OEM equipment or retrofitting to production machines
- Piece counting on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.
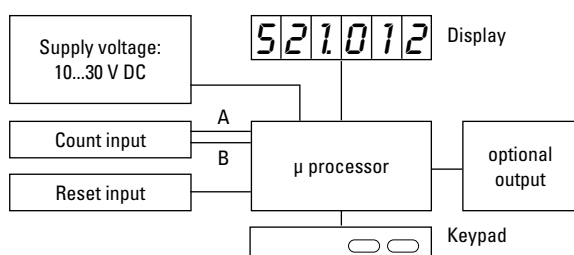
Position on milling machine

Position or quantity

Flow rate

Block diagram

Supply voltage: 10...30 V DC

Count input

Reset input

A

B

µ processor

Display

optional output

Keypad

Terminal assignment

1	2	3	4	5

PIN	without optocoupler
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset

1	2	3	4	5	6	7

PIN	with optocoupler (NPN)
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset
6	Emitter
7	Collector

Pulse counters, electronic

Dimensions

Dimensions in mm [inch]

48 [1.89]

24 [0.945]

22 x 45 [0.866 x 1.772]

max. 19.3 [0.76]

4 [0.158]

6.5 [0.256]

59 [2.323]

45⁺⁰·⁶ [1.772⁺⁰·⁰²⁴]

22.2⁺⁰·³ [0.874⁺⁰·⁰¹²]

Panel cut-out

Front bezel for clip mounting (included in delivery)

53 [2.087]

28 [1.103]

25 x 50 [0.984 x 1.969]

1 [0.039]

4 [0.158]

50⁺⁰·⁶ [1.969⁺⁰·⁰²⁴]

25⁺⁰·⁵ [0.984⁺⁰·⁰²]

Panel cut-out

Front bezel for screw mounting (included in delivery)

56 [2.205]

40 [1.575]

32 [1.26]

25 x 50 [0.984 x 1.969]

1 [0.039]

4 [0.158]

1

50⁺⁰·⁶ [1.969⁺⁰·⁰²⁴]

25⁺⁰·⁵ [0.984⁺⁰·⁰²]

Panel cut-out

32±⁰·¹ [1.26±⁰·⁰⁰⁴]

M3
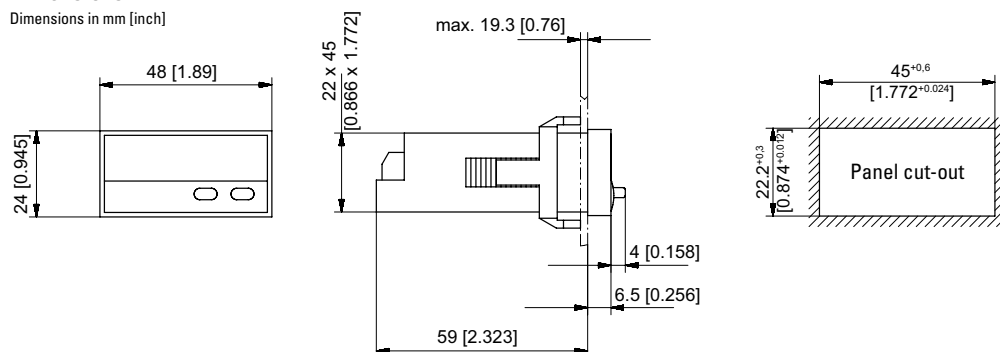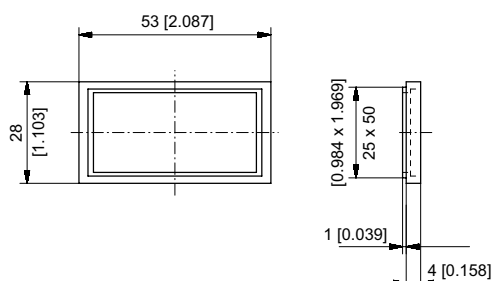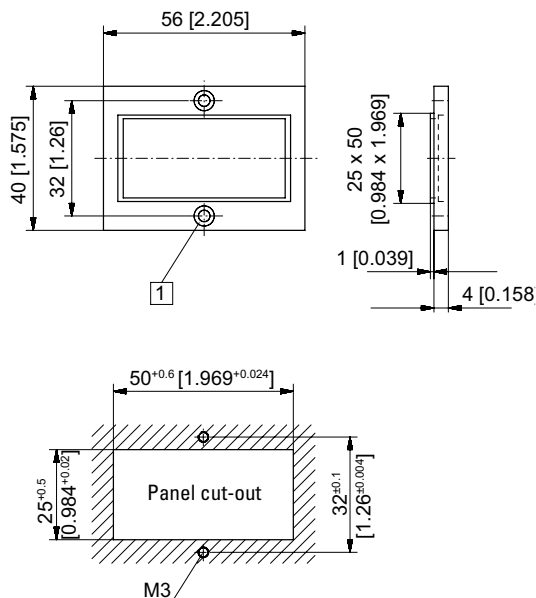
1 Countersinking Af3, DIN 74

Pulse counters, electronic

| LED pulse counters | Adding (DC) | Codix 520 |

The Codix 520 is a simple voltage powered pulse counter for fast and slow count pulses, with 6-digit LED display, for NPN / PNP input signals.

DC 10 … 30 V	**DIN 48x24**	-20°… +65°C	**IP65**	ProG	(glove)	PNP/NPN	max. 60 kHz	
Supply voltage	DIN front bezel	Temperature range	High protection level	Menu-driven programming	Operation with gloves	Input type	Pulse counter/ Totalizer	

Powerful

- Fast count input – input frequency max. 60 kHz.
- Robust housing – IP65 protected.
- Very bright LED display, 8 mm high.
- Simple totalizing and quantity counter
  - single channel count input and reset input.
  - programmable for positive (PNP) or 0V (NPN) switching input pulses.
  - fast count input with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts.
- 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

- Large keys – can also be operated when wearing gloves.
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt.
- Programmable decimal point, can be set from 0.0 to 0.000.
- Manual or electrical reset – tamper-proof due to lockable reset function.
- 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.

Order code

6.520 . 012 . 3 X 0
               a

a *Input switching level*
0 = Standard (HTL)
A = 4 … 30 V DC

Delivery specification
· Counter
· Mounting clip
· Front bezel for screw mounting (T008181) 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"]
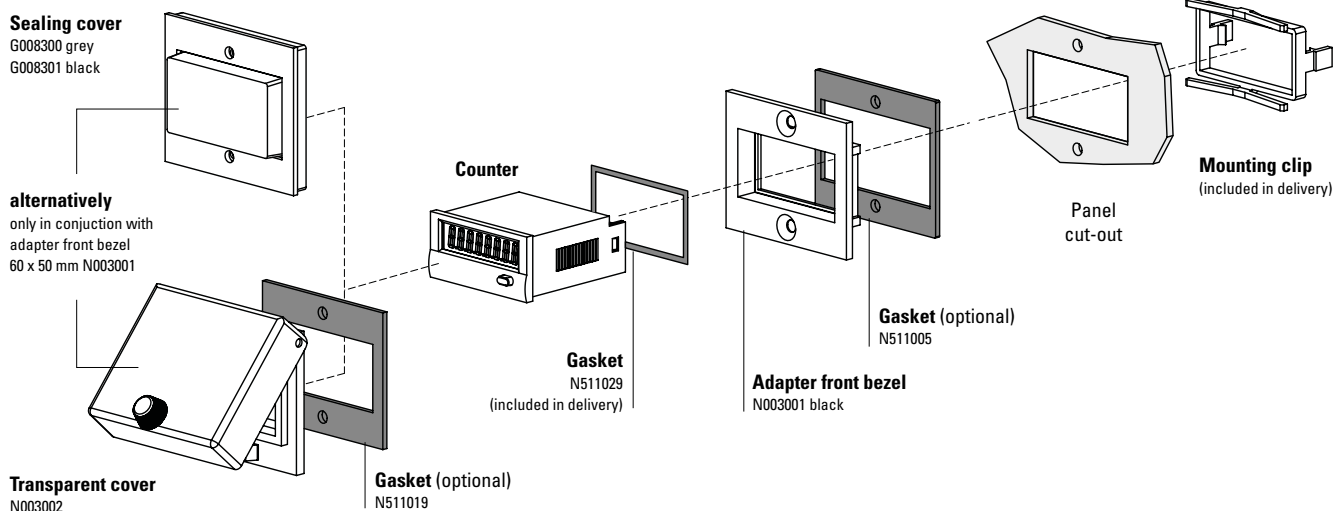· Gasket
· Instruction manual, multilingual

Stock types
6.520.012.300

Pulse counters, electronic

LED pulse counters	Adding (DC)	Codix 520

Accessories / Mounting examples

Sealing cover
G008300 grey
G008301 black

alternatively
only in conjuction with
adapter front bezel
60 x 50 mm N003001

Transparent cover
N003002

Gasket (optional)
N511019

Counter

Gasket
N511029
(included in delivery)

Adapter front bezel
N003001 black

Gasket (optional)
N511005

Panel
cut-out

Mounting clip
(included in delivery)

		Type / size	Description		Order no.	suitable gasket
Adapter front bezel		**53 x 28 mm** [2.09 x 1.10"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	**T008165**	**N511015**
				anthracite	T008180	
		56 x 40 mm [2.20 x 1.57"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	**T008161**	**N511045**
				anthracite	T008181	
		72 x 36 mm [2.83 x 1.42"]	for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	**162704Set**	–
		60 x 50 mm [2.36 x 1.97"]	for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	**N003001**	**N511005**
		48 x 48 mm [1.89 x 1.89"]	for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	**T008883**	–
Sealing cover IP65		**K1**	only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / grey	**G008300**	–
				transparent / black	**G008301**	
Transparent cover IP65		**1 Dv** (mounted on bezel)	cover lockable, for cut-out 54 x 29 mm [2.13 x 1.14"], only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / black	**N003002**	**N511019**
Gasket counter			48 x 24 mm (for installation in adapter front bezel)		N511029	
			49 x 25 mm		N511034	
Mounting frame		**cut-out 50 x 25 mm** [1.97 x 0.98"]	via adapter T008180 for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	**G300004**	–
Enclosure blind		**48 x 24 mm** [1.89 x 0.94"]	for cut-out 45 x 22.2 mm [1.77 x 0.94"] and cut-out 50 x 25 mm [1.97 x 0.98"]	anthracite	**G003836**	–

incl. in delivery

Pulse counters, electronic

LED pulse counters	Adding (DC)	Codix 520

Technical data

General technical data

Display		6 digits, red 7 segment LED display; 8 mm [0.32"] high
Data backup		EEPROM
Operating temperature	10 ... 26 V DC	-20 °C ... +65 °C [-4 °F ... +149 °F]
	> 26 ... 30 V DC	-20 °C ... +55 °C [-4 °F ... +131 °F] (non-condensing)
Storage temperature		-25 °C ... +70 °C [-13 °F ... +158 °F]

Electrical characteristics

Supply voltage	10 ... 30 V DC, with integrated reverse polarity protection
Current consumption	max. 45 mA

Mechanical characteristics

Housing	front panel mount acc. to DIN 43700 48 x 24 mm [1.89 x 0.94"] 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	100 G: 2 ms 10 G: 6 ms

Inputs

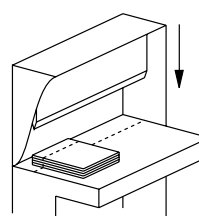|		
Polarity of inputs		programmable, NPN or PNP for all inputs
Input resistance		approx. 5 kΩ
Counting frequency		max. 60 kHz, can be damped to 30 Hz
Minimum pulse duration of the reset input		5 ms
Input switching level (HTL)	LOW	$0 ... 0.2 \times U_B$ (V DC)
	HIGH	$0.6 \times U_B ... 30$ V DC
Input switching level at 4 ... 30 V DC	LOW	0 ... 2 V DC
	HIGH	4 ... 30 V DC

Approvals

UL compliant in accordance with	File no. E128604
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU

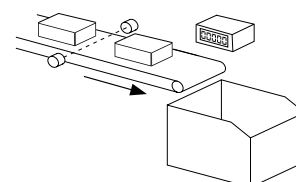## Applications for pulse counters / totalizers

- Simple count tasks such as quantity and piece counting
- Accessories, OEM equipment or retrofitting to production machines
- Piece counting on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.
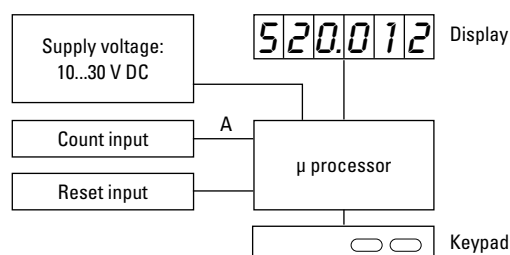
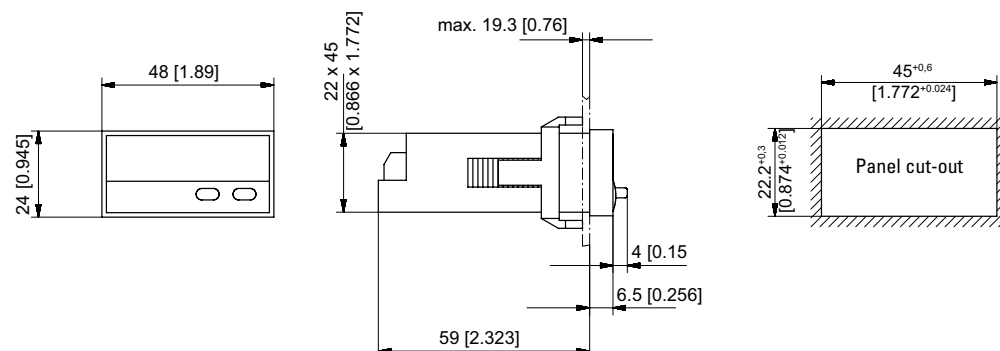Piece-counting   Number of cuts   Piece-counting on conveyor

Block diagram

Supply voltage: 10...30 V DC

Count input — A

Reset input

µ processor

520.012 — Display

Keypad

Terminal assignment

1	2	3	4	5

PIN	without optocoupler
1	10 ... 30 V DC
2	0 V GND
3	INP
4	–
5	Reset

| LED pulse counters | Adding (DC) | Codix 520 |

Dimensions

Dimensions in mm [inch]
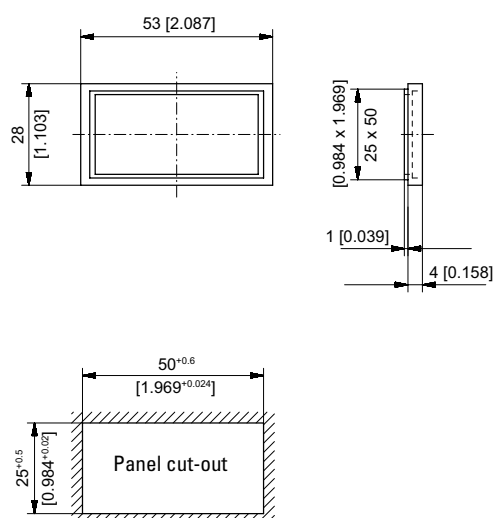
48 [1.89]
24 [0.945]

22 x 45 [0.866 x 1.772]
max. 19.3 [0.76]
4 [0.15]
6.5 [0.256]
59 [2.323]

45⁺⁰·⁶ [1.772⁺⁰·⁰²⁴]
22.2⁺⁰·³ [0.874⁺⁰·⁰¹²]
Panel cut-out

Front bezel for clip mounting (included in delivery)

53 [2.087]
28 [1.103]
25 x 50 [0.984 x 1.969]
1 [0.039]
4 [0.158]

50⁺⁰·⁶ [1.969⁺⁰·⁰²⁴]
25⁺⁰·⁵ [0.984⁺⁰·⁰²]
Panel cut-out

Front bezel for screw mounting (included in delivery)

56 [2.205]
40 [1.575]
32 [1.26]
25 x 50 [0.984 x 1.969]
1 [0.039]
4 [0.158]
1

50⁺⁰·⁶ [1.969⁺⁰·⁰²⁴]
25⁺⁰·⁵ [0.984⁺⁰·⁰²]
Panel cut-out
32±0.1 [1.26±0.004]
M3
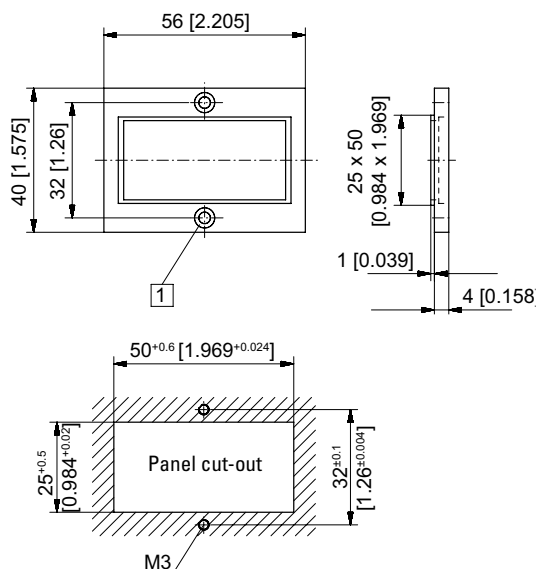
1 Countersinking Af3, DIN 74

Pulse counters, electronic

LCD modules	Adding, 6 digits (DC)	192

Type 192 is a single channel counter module for PCB mounting, with a large voltage range of 8 up to 28 V DC and a 6-digit LCD display.

Extremely robust as a result of its wide temperature range, the module is ideally suited for use in many application areas.

DC 8 ... 28 V	max. 100 Hz	PNP		-40°... +80°C		7 LCDs	
Supply voltage	Max. count frequency	Input type	High shock resistance	Temperature range	PCB mount	LCD display	Electrical reset

Powerful

- Count frequency up to 100 Hz.
- 6-digits LCD display, 5 mm high.
- Low operating current.
- Wide operating voltage and temperature range.
- High shock and vibration resistance.

Simple

- Non-volatile memory (no battery).
- Single channel count input.
- Electrical reset.
- Very high reliability.
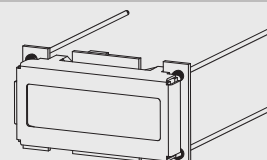- Small size and very competitive price.

Order no.

Supply voltage	Order no.	Art. no.
8 ... 28 V DC	**6.192.012.H00**	162 135

Delivery specification
- · LCD counter module type 192
- · Operating instructions

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1) Stock types.

Pulse counters, electronic

LCD modules	Adding, 6 digits (DC)	192

Technical data

General technical data

Display	6 digits, LCD display, figure height 5 mm [0.20"]
Data backup	EEPROM
Memory	CMOS EEPROM. non-volatile memory
data backup	up to 10 years (without battery)
Operating / working / storage temperature	-40 °C ... +85 °C [-40 °F ... +185 °F] (non-condensing)
Humidity	95 % rel +32 °C [+90 °F] for 2 hours

Electrical characteristics

Supply voltage	8 ... 28 V DC
Current consumption	max. 3 mA at 4.5 V DC
	10 mA at 28 V DC

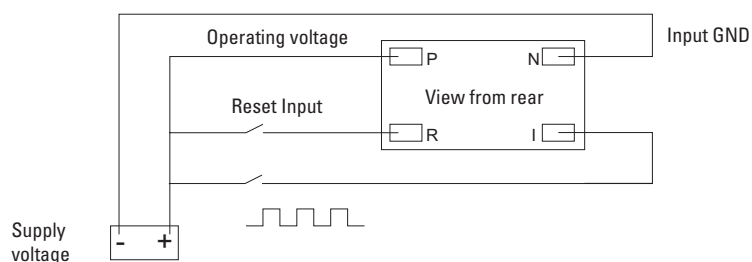The module must be protected against inductive voltage spikes and high energy noise interference.

Mechanical characteristics

Housing	dimensions	18.4 x 32.4 mm [0.72 x 1.28"]
	color	black
Weight		approx. 8 g [0.28 oz]
Vibration resistance acc. to EN 60068-2-6		10 ... 80 m/s^2, 10 ... 75 Hz

Inputs

Count input	8 ... 28 V DC
max. counting frequency	100 Hz
Reset input	8 ... 28 V DC
pulse length	min. 500 msec

Approvals

CE compliant in accordance with

EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU

Dimensions

Dimensions in mm [inch]
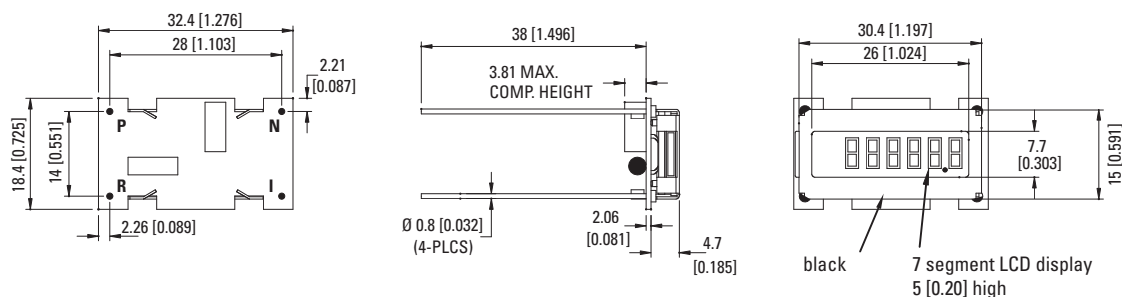
Terminal assignment

Pulse counters, electronic

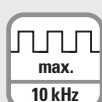| LCD modules	Adding, 7 digits (DC)	190

The single-channel count module type 190 for PCB mounting, with 2 voltage ranges (4.75 ... 15 and 9 ... 60 V DC) and large 7-digit LCD display, boasts a very wide temperature range.

This ensures the device is extremely robust and suitable for many application areas, even under the harshest operating conditions.
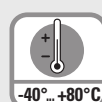
RoHS

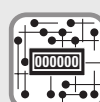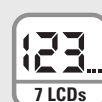|							
DC 4.75 ... 60 V	**max.** **10 kHz**	**PNP**		-40°...+80°C		**7 LCDs**	
Supply voltage	Max. count frequency	Input type	High shock resistance	Temperature range	PCB mount	LCD display	Electrical reset

Powerful

- Count frequency up to 10 kHz.
- 7-digit LCD display, 6 mm high.
- Low operating current.
- Wide operating voltage and temperature range.
- Very high shock and vibration resistance.

Simple

- Non-volatile memory (no battery).
- Single channel count input.
- Electrical reset.
- Very high reliability.
- Small size and very competitive price.

Order no.

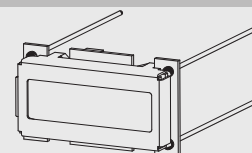| Supply voltage	Order no.	Art. no.
4.75 ... 15 V DC	**6.190.012.F00**	162 135
9 ... 60 V DC	**6.190.012.G00**	162 136

Delivery specification
· LCD counter module type 190
· Operating instructions

Pulse counters, electronic

LCD modules	Adding, 7 digits (DC)	190

Technical data

General technical data

Display	7 digits, LCD display, figure height 6 mm [0.24"]
Data backup	EEPROM
Memory	CMOS EEPROM non-volatile memory
data backup	up to 10 years
Operating temperature	-40 °C ... +80 °C [-40 °F ... +176 °F] (non-condensing)
Working temperature	-20 °C ... +80 °C [-4 °F ... +176 °F] (non-condensing)
Storage temperature	-50 °C ... +90 °C [-58 °F ... +194 °F]

Electrical characteristics

Supply voltage	4.75 ... 15 V DC with reverse polarity protection 9 ... 60 V DC
Current consumption	8 mA at 4.75 ... 15 V DC 6 mA at 9 ... 60 V DC
EMC standards	EN 55011 class B EN 61000-6-2, EN 61000-6-3, EN 61326-1

The module must be protected against inductive voltage spikes and high energy noise interference.

Mechanical characteristics

Housing	dimensions	18.4 x 32.4 mm [0.72 x 1.28"]
	color	black
Weight		approx. 8 g [0.28 oz]
Shock resistance acc. to EN 60068-2-27		550 m/s^2, 11 ms
Vibration resistance acc. to EN 60068-2-6		50 ... 200 m/s^2, 10 ... 80 Hz

Inputs

Count input	HIGH	4 ... 60 V DC
	LOW	0 ... 0.7 V DC
max. counting frequency		10 kHz, edge triggered (negative edge)
Reset input	HIGH	4 ... 60 V DC
	LOW	0 ... 0.7 V DC
pulse length		1 ms edge triggered (positive edge)

Approvals

CE compliant in accordance with

EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU

Dimensions

Dimensions in mm [inch]
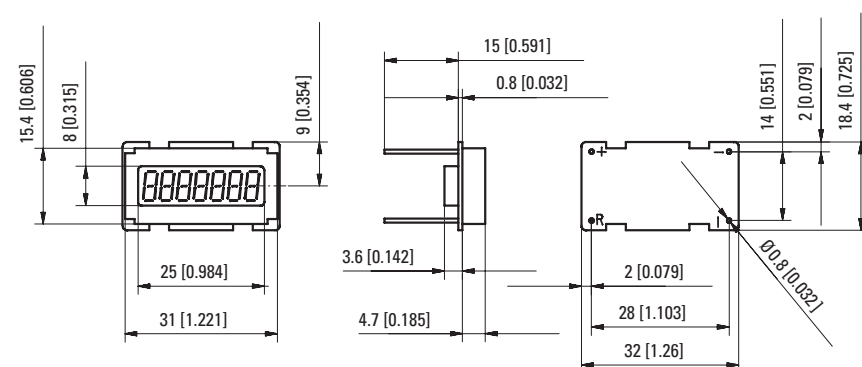
Terminal assignment
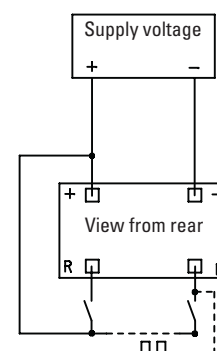
Pulse counters, electronic

LCD pulse counters	Adding counter / service counter (DC)	Codix 140 / 142

The Codix 140 / 142 is a simple voltage powered pulse counter for fast and slow count pulses, with 7-digit LCD display for NPN / PNP input signals.
Optional: can be factory pre-programmed.

Codix 140: Standard counter
Codix 142: Service counter

DC 10 ... 30 V	PNP/NPN	max. 8 kHz	-20°... +65°C	IP65	DIN 48x24	7 LCDs	1 2 3 4 5 / 0 0 0 0 0	1
Supply voltage	Input type	Max. count frequency	Temperature range	High protection level	DIN front bezel	LCD display	Lockable reset	Transistor output (142)

Functional

- Direct display of the total number of pulses.
- Key press displays preset service value and its pre-signal.
- Preset value output as display text and transistor output.
- Pre-signal for the service intervals as display text.
- Manual or electrical reset of the display or of the service intervals.
- Fast PNP or damped NPN control via separate inputs.

User friendly

- Supply voltage 10 ... 30 V DC.
- Values stored in EEPROM.
- Fixed pre-programmed service intervals e.g.
  Service at 5000 imp (service)
  Pre-signal at 4900 imp (pre-service)
  Blinking text message on the display (service or pre-service).
- Multifunction reset key can be enabled via "Reset Enable" input.
- Reset to delivery condition possible.
- Can be factory pre-programmed.

Order code Standard counter	6.140 . 012 . 300 . XXXX (a)

(a) *Option 1 [1]*
Divisor
(if divisor is 1 then omit last 4 digits from code)
0002 ... 4095

Further options on request [1]
- Multiplier
- Decimal point
- Other options

Delivery specification
- Counter
- Mounting clip
- Gaskets
- Instruction manual, multilingual

Stock types
6.140.012.300 [2]

Order code Service counter	6.142 . 011 . 300 . XXXX (a) . XX (b) . XXXX (c)

(a) *Option 3 [1]*
Service preset
005K [2] = 5000

(b) *Option 2 [1]*
Pre-warning, display text, *further options*
00 [2] = Pre-warning at 100 before the preset service value.
Display shows text PrESErV with pre-warning and text SErViCE with preset service value.

(c) *Option 1 [1]*
Divisor
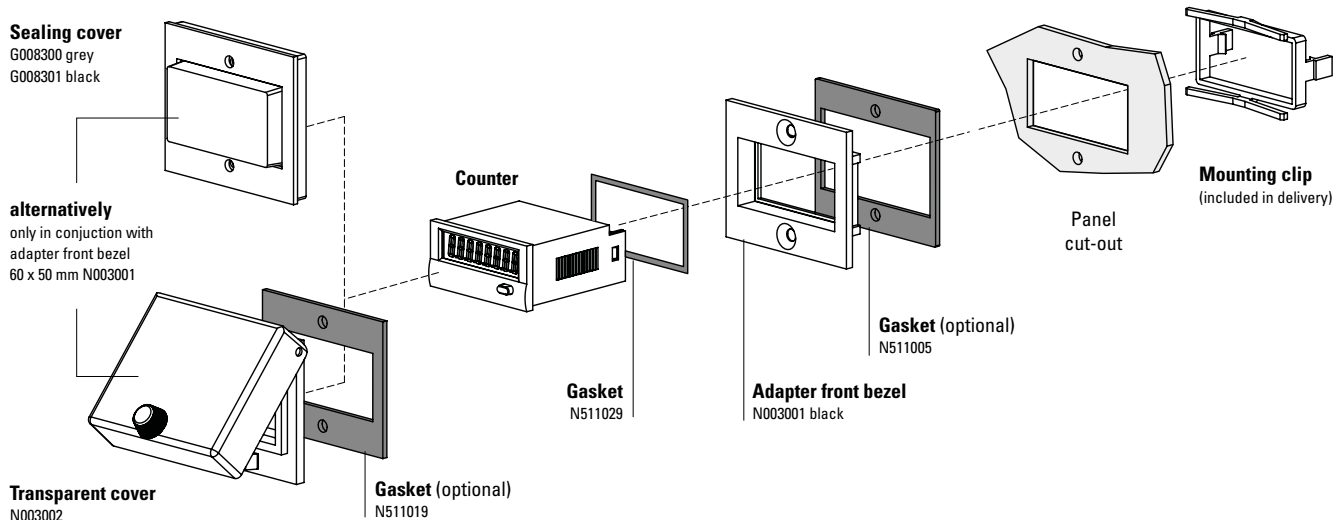*(if divisor is 1 then omit last 4 digits from code)*
0002 ... 4095

Further options on request [1]
- Multiplier
- Decimal point
- Other options

Delivery specification
- Counter
- Mounting clip
- Gaskets
- Instruction manual, multilingual

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1) The option 1 - 3 can be programmed according to customer needs.
Please note: The min. order quantity for custom versions is 10 pcs with an extra charge, or 200+ pcs with no extra charge.
2) Standard variant without additional charge.

Pulse counters, electronic

LCD pulse counters	Adding counter / service counter (DC)	Codix 140 / 142

Accessories / Mounting examples

Sealing cover
G008300 grey
G008301 black

alternatively
only in conjuction with
adapter front bezel
60 x 50 mm N003001

Transparent cover
N003002

Counter

Gasket
N511029

Gasket (optional)
N511019

Adapter front bezel
N003001 black

Gasket (optional)
N511005

Panel cut-out

Mounting clip
(included in delivery)

		Type / size	Description		Order no.	suitable gasket
Adapter front bezel		**53 x 28 mm** [2.09 x 1.10"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black anthracite	T008165 T008180	N511015
		56 x 40 mm [2.20 x 1.57"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black anthracite	T008161 T008181	N511045
		72 x 36 mm [2.83 x 1.42"]	for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	162704Set	–
		60 x 50 mm [2.36 x 1.97"]	for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	N003001	N511005
		48 x 48 mm [1.89 x 1.89"]	for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	T008883	–
Sealing cover IP65		**K1**	only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / grey transparent / black	G008300 G008301	–
Transparent cover IP65		**1 Dv** (mounted on bezel)	cover lockable, for cut-out 54 x 29 mm [2.13 x 1.14"], only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / black	N003002	N511019
Gasket counter			48 x 24 mm (for installation in adapter front bezel)		N511029	
			49 x 25 mm		N511034	
Mounting frame		**cut-out 50 x 25 mm** [1.97 x 0.98"]	via adapter T008180 for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	G300004	–
Enclosure blind		**48 x 24 mm** [1.89 x 0.94"]	for cut-out 45 x 22.2 mm [1.77 x 0.94"] and cut-out 50 x 25 mm [1.97 x 0.98"]	anthracite	G003836	–

im Lieferumfang

Pulse counters, electronic

| LCD pulse counters | Adding counter / service counter (DC) | Codix 140 / 142 |

Technical data

General technical data

Display	LCD, 7 digits, 8 mm [0.32"] high
Counting range	0 ... 9999999, no decimal point
Data backup	EEPROM
Operating temperature	-20 °C ... +65 °C [-4 °F ... +149 °F] (non-condensing)
Storage temperature	-25 °C ... +75 °C [-13 °F ... +167 °F]

Electrical characteristics

Supply voltage	10 ... 30 V DC, max. 25 mA
Start delay	500 ms

Mechanical characteristics

Housing	front panel mount DIN 43700, 48 x 24 mm [1.89 x 0.94"] dark grey Ral 7021
Weight	40 g [1.41 oz]
Protection	IP65 (front side) IP20 (rear side)
Connections	8-pole screw terminals, pitch 5.08 mm [2.00"]
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	100 G: 2 ms 10 G: 6 ms

Inputs

Counting input A		fast input, PNP switching (max. 25 kHz)
Counting input B		slow input, NPN switching (mechanical contact, max. 48 Hz)
Reset key enable input		static NPN input
Reset		edge-triggered NPN input (min. 20 ms)
Input resistance		10 kOhm
Switching level	LOW	0 ... 2 V DC
	HIGH	3.5 ... 30 V DC
Switching threshold		approx. 2.7 V DC
Scaling		1 ... 4095 (factory-set)

Additional data for Codix 142 (service counter)

Output	NPN transistor output, open collector
Output voltage	max. 30 V DC
Output current	max. 50 mA

Approvals

CE compliant in accordance with

EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU

Display and inquiry mode - service counter

If the reset key is not released by means of the activation input of pin 6, pressing the key makes the following functions available to the user.

Press 1 x: The text "SErViCE" is displayed

Press 2 x: The following Service value is displayed

Press 3 x: The text "PrESErV" is displayed

Press 4 x: The following pre-service value is displayed

Press 5 x: The current value is displayed

For the service counters, the values counted remain stored, the service values are incremented by the stored preset value when resetting. E.g. service value 5000 pulses, counter count when resetting 5100 pulses, new service value 10100.
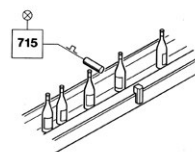
Applications
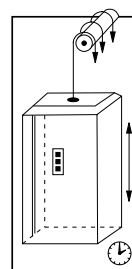
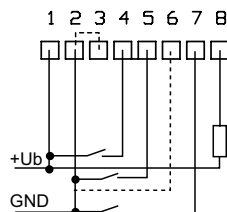Ride counting and service intervals
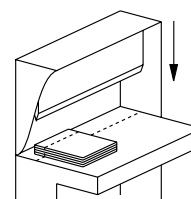
Number of cuts and knife replacement

Total quantity and service interval
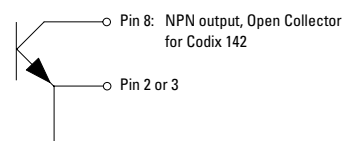
Pulse counters, electronic

| LCD pulse counters | Adding counter / service counter (DC) | Codix 140 / 142 |

Terminal assignment

PIN	Description	Standard counter	Service counter
Supply voltage			
1	+U_B	10 ... 30 V DC	10 ... 30 V DC
2	0 V DC, GND	GND	GND
Inputs			
3	0 V DC, GND	GND	GND
4	Fast counting input	INP PNP	INP PNP
5	Slow counting input	INP NPN	INP NPN
6	Reset enable input	RESET MANUAL ENABLE	RESET MANUAL ENABLE
7	Reset input	RESET	RESET
Output			
8	NPN output	n.c.	OUT

Output 8 is used only with Codix 142 as a NPN output

Pin 8: NPN output, Open Collector for Codix 142

Pin 2 or 3

Dimensions

Dimensions in mm [inch]

48 [1.89]

24 [0.945]

22 x 45 [0.866 x 1.772]

max. 19.3 [0.76]

47.7 [1.878]

2.8 [0.11]

3 [0.118]

45 $^{+0.6}$ [1.772 $^{+0.024}$]

22.2 $^{+0.3}$ [0.874 $^{+0.012}$]

Panel cut-out
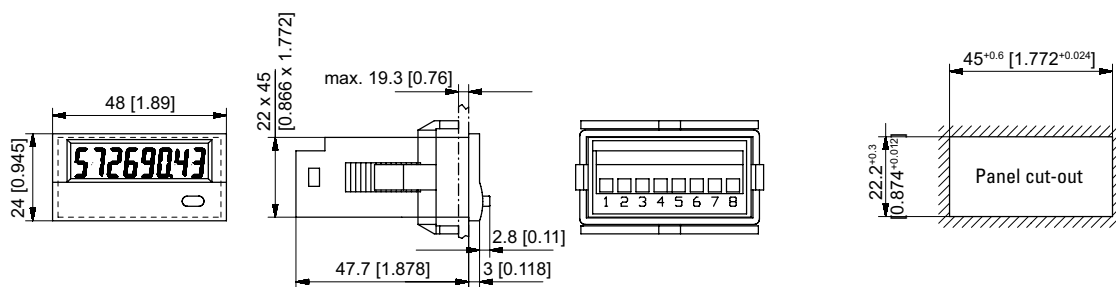
Pulse counters, electronic

LCD pulse counters	With count direction AC (battery)	Codix 132

The Codix 132 is a simple battery powered pulse counter with count and count direction input, 8-digit LCD display, optional backlighting, for high voltage applications 10 … 260 V AC/DC.

Battery powered	Input type PNP/NPN	Pulse voltage AC/DC 10 … 260 V	Count with direction (DIR)	Max. count frequency max. 30 Hz	Temperature range -10°… +60°C	High protection level IP65	DIN front bezel DIN 48x24	LCD display 8 LCDs	Lockable reset

Powerful

- High quality LCD display with 8 mm high figures.
- Count direction adding and subtracting via direction input.
- Battery life approx. 8 years.
- Optional display backlighting.
- Filter function for bounce-free counting with mechanical contacts.
- Count frequency max. 30 Hz.
- High protection level IP65.

Simple

- Screw terminals, RM 5 mm.
- Reset key can be enabled via "Reset Enable" input.
- High voltage version for 10 … 260 V AC/DC voltage pulses.
- Large 8-digit LCD display with 8 mm high figures.

Order code

6.132 . 012 . 8 X 3
           ⓐ ⓑ

ⓐ *Backlighting*
5 = without
6 = with [1]

ⓑ *Input type: Cnt.Dir [1] – count direction with count and static direction input*

Input type	INP A				INP B			
3 = Cnt.Dir [1]	10 … 260 V AC/DC	direction	AC/DC	30 Hz	10 … 260 V AC/DC	count	AC/DC	30 Hz

Delivery specification
· Pulse counter
· Mounting clip
· Front bezel for screw mounting (T008181) 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
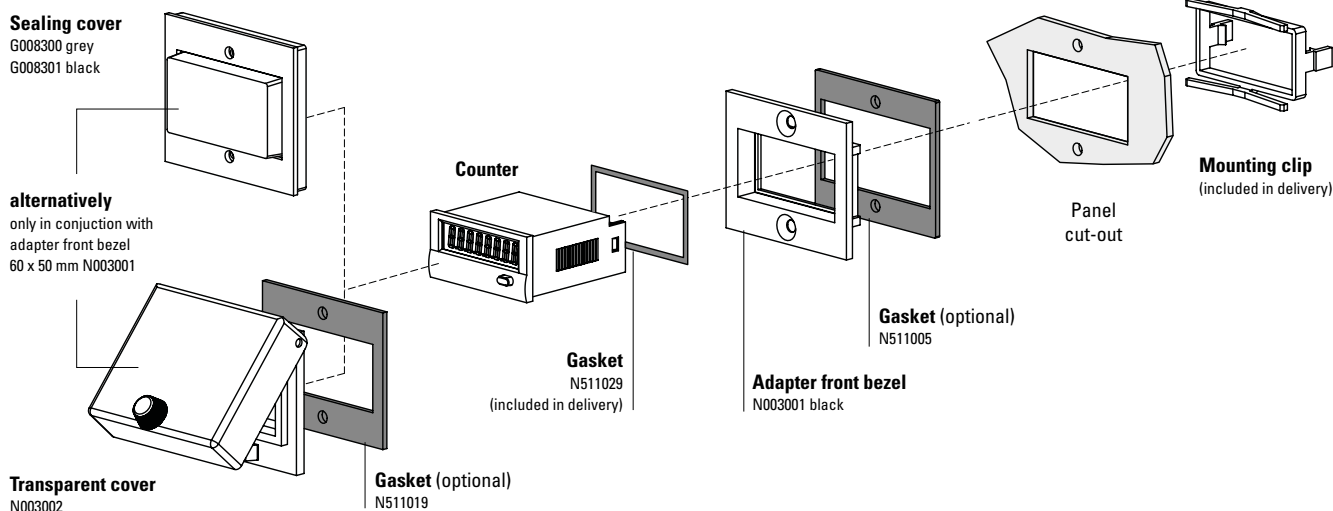· Instruction manual, multilingual

Stock types
6.132.012.853

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[1] Counting input with counting direction input.

Pulse counters, electronic

Accessories / Mounting examples

Sealing cover
G008300 grey
G008301 black

alternatively
only in conjuction with
adapter front bezel
60 x 50 mm N003001

Transparent cover
N003002

Counter

Gasket
N511029
(included in delivery)

Gasket (optional)
N511019

Gasket (optional)
N511005

Adapter front bezel
N003001 black

Panel
cut-out

Mounting clip
(included in delivery)

		Type / size	Description		Order no.	suitable gasket
Adapter front bezel		**53 x 28 mm** [2.09 x 1.10"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	**T008165**	**N511015**
				anthracite	T008180	
		56 x 40 mm [2.20 x 1.57"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	**T008161**	**N511045**
				anthracite	T008181	
		72 x 36 mm [2.83 x 1.42"]	for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	**162704Set**	–
		60 x 50 mm [2.36 x 1.97"]	for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	**N003001**	**N511005**
		48 x 48 mm [1.89 x 1.89"]	for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	**T008883**	–
Sealing cover IP65		**K1**	only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / grey	**G008300**	–
				transparent / black	**G008301**	
Transparent cover IP65		**1 Dv** (mounted on bezel)	cover lockable, for cut-out 54 x 29 mm [2.13 x 1.14"], only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / black	**N003002**	**N511019**
Gasket counter			48 x 24 mm (for installation in adapter front bezel)		N511029	
			49 x 25 mm		N511034	
Mounting frame		cut-out **50 x 25 mm** [1.97 x 0.98"]	via adapter T008180 for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	**G300004**	–
Enclosure blind		**48 x 24 mm** [1.89 x 0.94"]	for cut-out 45 x 22.2 mm [1.77 x 0.94"] and cut-out 50 x 25 mm [1.97 x 0.98"]	anthracite	**G003836**	–

incl. in delivery

| **LCD pulse counters** | **With count direction AC (battery)** | **Codix 132** |

Technical data

General technical data

Display	LCD, 8 digits, 8 mm [0.32"] high
Backlighting	external electrical source 24 V DC ±20 %, 50 mA
Modes	counting direction (count and direction input)
Display range	-9999999 ... 99999999, with overflow display
Reset	manual and electrical
Working temperature	-10 °C ... +55 °C [+14 °F ... +131 °F] (non-condensing)
Operating temperature	-10 °C ... +60 °C [+14 °F ... +140 °F] (non-condensing)
Storage temperature	-20 °C ... +70 °C [-4 °F ... +158 °F]
Relative humidity	< 85 % (non-condensing)
Altitude	up to 2000 m [6562']

Electrical characteristics

Supply voltage		internal lithium battery approx. 8 years at 20 °C [68 °F]
Device safety	designed to	EN 61010 part 1
	protection class	2
	application area	pollution level 2

Mechanical characteristics

Housing	dark grey RAL 7021
Protection	IP65 (front side)
Weight	approx. 50 g [1.76 oz]

Counting inputs

Counting input of the high voltage versions (10 ... 260 V DC/AC)		
counting and direction input		
optocoupler input		max. 30 Hz
minimum pulse time		16 ms
switching level	LOW	0 ... 2 V AC/DC
	HIGH	10 ... 260 V AC/DC
Reset input		
minimum pulse time	DC	50 ms
	high voltage	16 ms
contact input DC – NPN	LOW	0 ... 0.7 VDC
	HIGH	3 ... 30 V DC
Electrical reset key locking		
contact input		open collector NPN (switching at 0 V)
switching level – NPN	LOW	0 ... 0.7 V DC
	HIGH	3 ... 5 V DC

Approvals

UL compliant in accordance with		File no. E128604
CE compliant in accordance with		
	EMC Directive	2014/30/EU
	RoHS Directive	2011/65/EU
	Low Voltage Directive	2014/35/EU

Terminal assignment
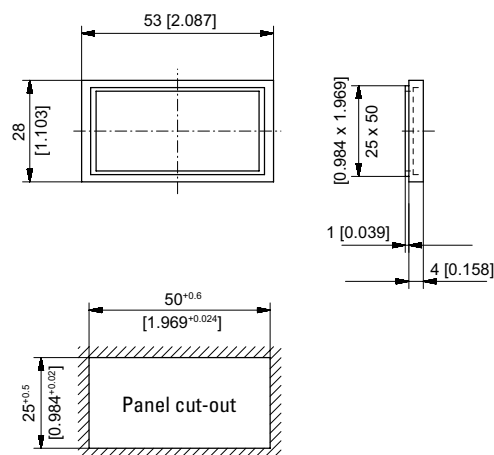
AC type: 6.132.012.8x3
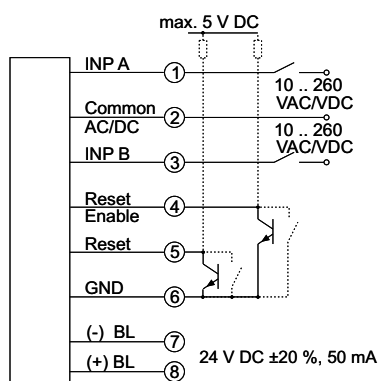
BL = backlighting

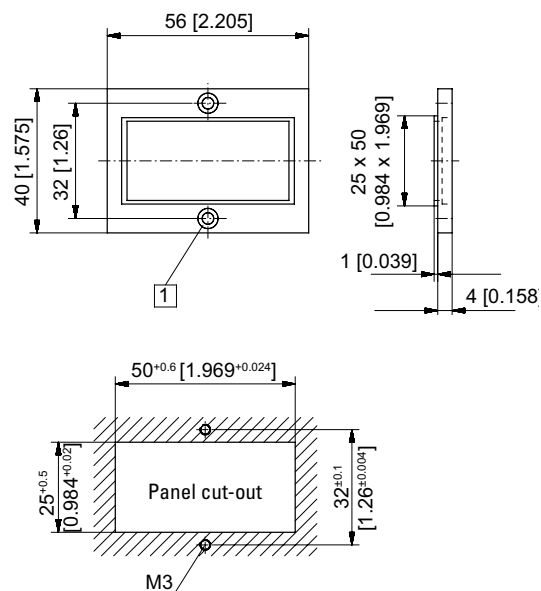| LCD pulse counters | With count direction AC (battery) | Codix 132 |

Dimensions

Dimensions in mm [inch]
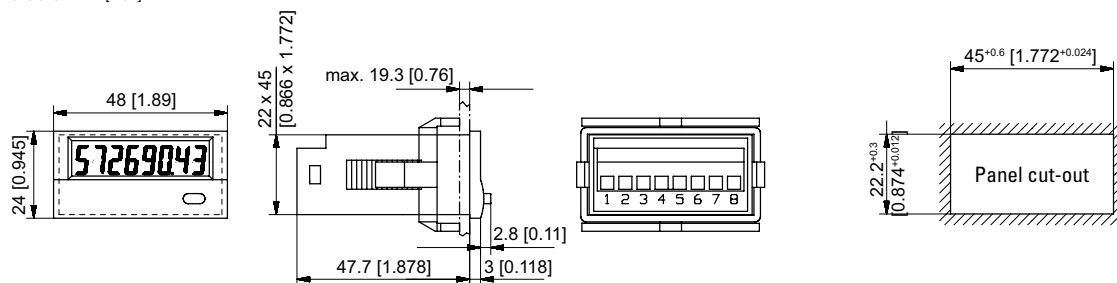
Front bezel for clip mounting (included in delivery)

Front bezel for screw mounting (included in delivery)
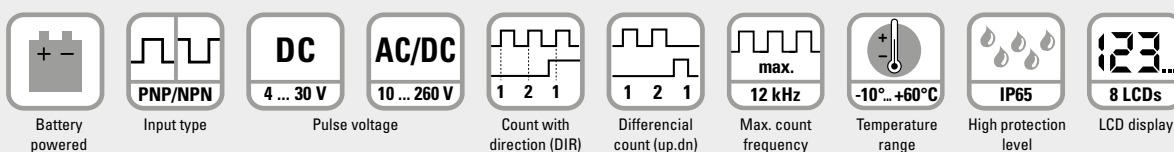

1 Countersinking Af3, DIN 74

Pulse counters, electronic

LCD pulse counters	With count direction DC or difference counter AC+DC (battery)	Codix 131

The Codix 131 is a simple battery powered pulse counter with difference or count direction input, 8-digit LCD display, optional backlighting, for NPN, PNP and high voltage applications.

PNP/NPN	**DC** 4 ... 30 V	**AC/DC** 10 ... 260 V	**1 2 1**	**1 2 1**	**max. 12 kHz**	-10°... +60°C	**IP65**	**123...**	
Battery powered	Input type	Pulse voltage	Count with direction (DIR)	Differential count (up.dn)	Max. count frequency	Temperature range	High protection level	8 LCDs / LCD display	

Powerful

- High quality LCD display with 8 mm high figures.
- Count direction, adding and subtracting via count direction or difference input.
- Battery life approx. 8 years.
- Optional display backlighting.
- Count frequency max. 12 kHz.
- High protection level IP65.

Simple

- Screw terminals, RM 5 mm.
- Reset key can be enabled via "Reset Enable" input.
- For positive and negative counting edges, depending on version.
- High voltage version for 10 ... 260 V AC/DC voltage pulses.
- Large 8-digit LCD display with 8 mm high figures.

Order code

6.131 . 012 . 8 X X
                             ⓐ ⓑ

ⓐ *Backlighting*
5 = without
6 = with

ⓑ *Input type: Cnt.Dir [1] / UP.DN [2] – count direction or differential counting*

Input type	INP A				INP B			
0 = Cnt.Dir [1] / UP.DN [2]	0 ... 0.7 V DC	count	NPN	7 kHz	0 ... 0.7 V DC	count / direction	NPN	7 kHz
1 = Cnt.Dir [1] / UP.DN [2]	4 ... 30 V DC	count	PNP	12 kHz	4 ... 30 V DC	count / direction	PNP	12 kHz
3 = UP.DN [2]	10 ... 260 V AC/DC	count	AC/DC	30 Hz	10 ... 260 V AC/DC	count	AC/DC	30 Hz

Delivery specification
- Pulse counter
- Mounting clip
- Front bezel for screw mounting (T008181) 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

Stock types
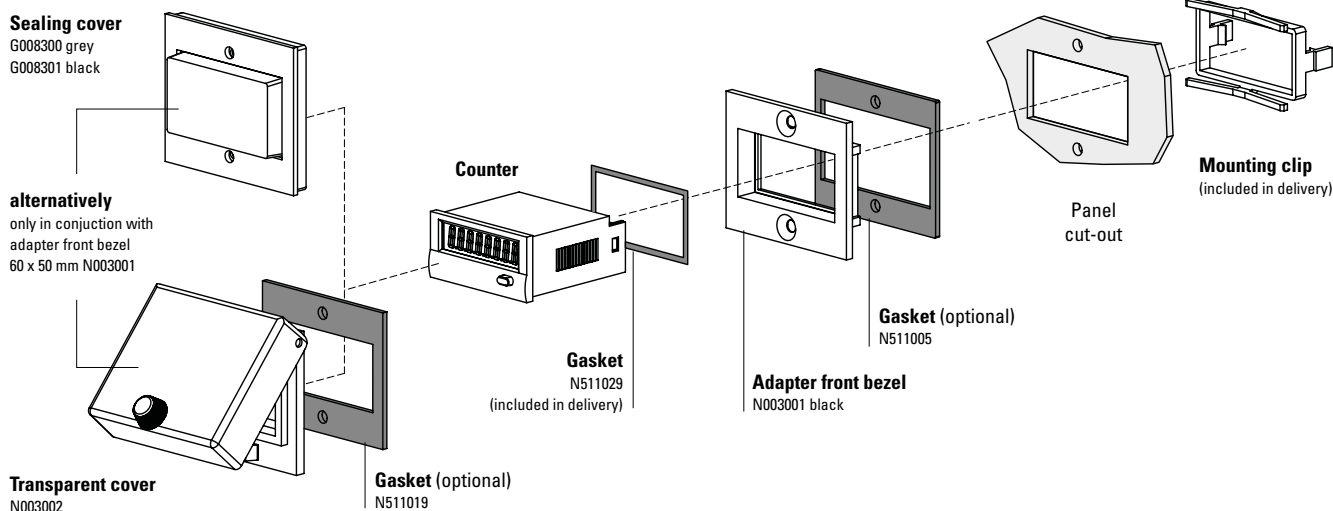**6.131.012.850**
6.131.012.851

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1) Counting input with counting direction input.
2) One adding and one subtracting counting input (differential mode).

Pulse counters, electronic

Accessories / Mounting examples

Sealing cover
G008300 grey
G008301 black

alternatively
only in conjuction with
adapter front bezel
60 x 50 mm N003001

Transparent cover
N003002

Counter

Gasket
N511029
(included in delivery)

Gasket (optional)
N511019

Gasket (optional)
N511005

Adapter front bezel
N003001 black

Panel cut-out

Mounting clip
(included in delivery)

		Type / size	Description		Order no.	suitable gasket
Adapter front bezel		**53 x 28 mm** [2.09 x 1.10"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	**T008165**	**N511015**
				anthracite	T008180	
		56 x 40 mm [2.20 x 1.57"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	**T008161**	**N511045**
				anthracite	T008181	
		72 x 36 mm [2.83 x 1.42"]	for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	**162704Set**	–
		60 x 50 mm [2.36 x 1.97"]	for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	**N003001**	**N511005**
		48 x 48 mm [1.89 x 1.89"]	for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	**T008883**	–
Sealing cover IP65		**K1**	only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / grey	**G008300**	–
				transparent / black	**G008301**	
Transparent cover IP65		**1 Dv** (mounted on bezel)	cover lockable, for cut-out 54 x 29 mm [2.13 x 1.14"], only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / black	**N003002**	**N511019**
Gasket counter			48 x 24 mm (for installation in adapter front bezel)		N511029	
			49 x 25 mm		N511034	
Mounting frame		**cut-out 50 x 25 mm** [1.97 x 0.98"]	via adapter T008180 for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	**G300004**	–
Enclosure blind		**48 x 24 mm** [1.89 x 0.94"]	for cut-out 45 x 22.2 mm [1.77 x 0.94"] and cut-out 50 x 25 mm [1.97 x 0.98"]	anthracite	**G003836**	–

incl. in delivery

| LCD pulse counters | With count direction DC or difference counter AC+DC (battery) | Codix 131 |

Technical data

General technical data

Display	LCD, 8 digits, 8 mm [0.32"] high
Backlighting	external electrical source 24 V DC ±20 %, 50 mA
Modes	counting direction (count and direction input) or differential counting
Display range	-9999999 ... 99999999, with overflow display
Reset	manual and electrical
Working temperature	-10 °C ... +55 °C [+14 °F ... +131 °F] (non-condensing)
Operating temperature	-10 °C ... +60 °C [+14 °F ... +140 °F] (non-condensing)
Storage temperature	-20 °C ... +70 °C [-4 °F ... +158 °F]
Relative humidity	< 85 % (non-condensing)
Altitude	up to 2000 m [6562']

Electrical characteristics

Supply voltage		internal lithium battery approx. 8 years at 20 °C [68 °F]
Device safety	designed to	EN 61010 part 1
	protection class	2
	application area	pollution level 2

Mechanical characteristics

Housing	dark grey RAL 7021
Protection	IP65 (front side)
Weight	approx. 50 g [1.76 oz]

Counting inputs

Counting input of the DC-versions (max. 30 V DC)			
fast counting input			max. 12 kHz (PNP), 7 kHz (NPN)
switching level NPN		LOW	0 ... 0.7 V DC
		HIGH	3 ... 30 V DC
switching level PNP		LOW	0 ... 0.7 V DC
		HIGH	4 ... 30 V DC

Counting input of the high voltage versions (10 ... 260 V DC/AC)			
A subtracting	optocoupler input		max. 30 Hz
B adding	min. pulse time		16 ms
switching level		LOW	0 ... 2 V AC/DC
		HIGH	10 ... 260 V AC/DC

Counting direction switching (only DC-version)			
mode			count direction / difference
contact input			open collector NPN (switching at 0 V DC)
switching level – NPN		LOW	0 ... 0.7 V DC
		HIGH	3 ... 5 V DC

Reset input (only DC and high voltage)			
minimum pulse time	DC		50 ms
	high voltage		16 ms
contact input DC – NPN		LOW	0 ... 0.7 V DC
		HIGH	3 ... 30 V DC

Electrical reset key locking (only DC and high voltage)			
contact input			open collector NPN (switching at 0 V DC)
switching level – NPN		LOW	0 ... 0.7 V DC
		HIGH	3 ... 5 V DC

Approvals

UL compliant in accordance with	File no. E128604

CE compliant in accordance with		
	EMC Directive	2014/30/EU
	RoHS Directive	2011/65/EU
	Low Voltage Directive	2014/35/EU

Terminal assignment
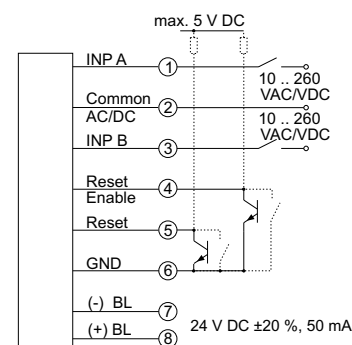
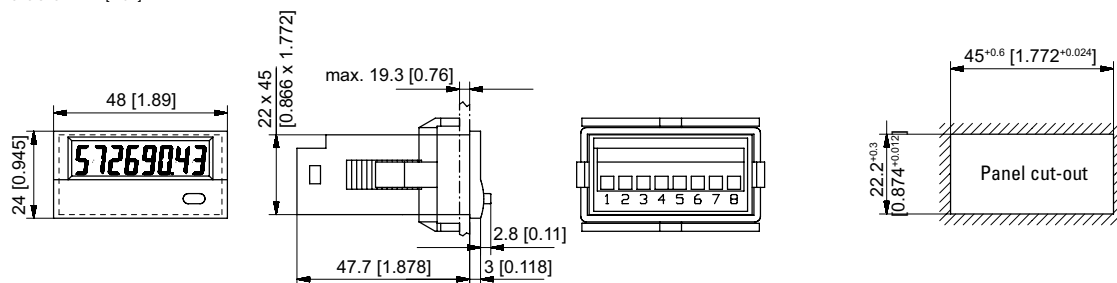DC type: 6.131.012.8x0
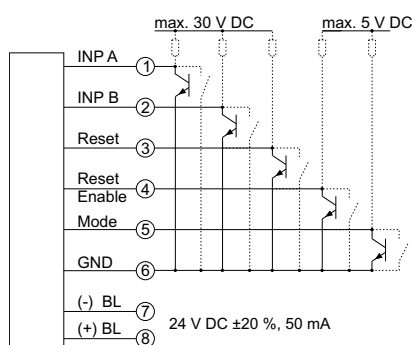
DC type: 6.131.012.8x1
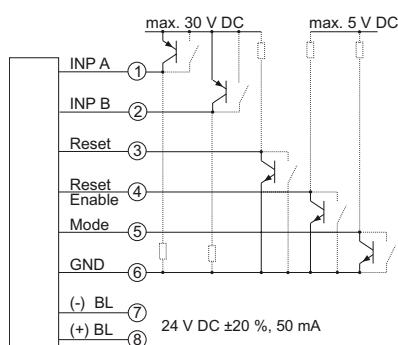
AC type: 6.131.012.8x3
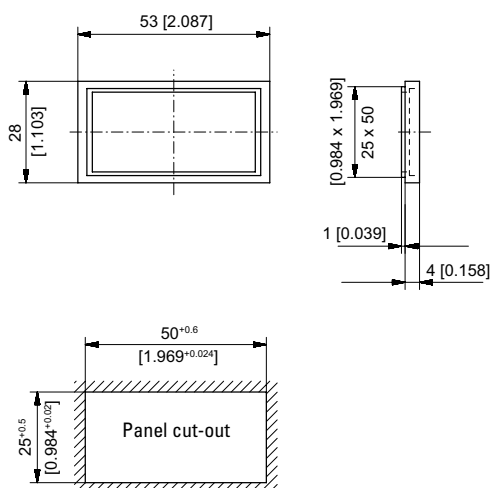

BL = backlighting

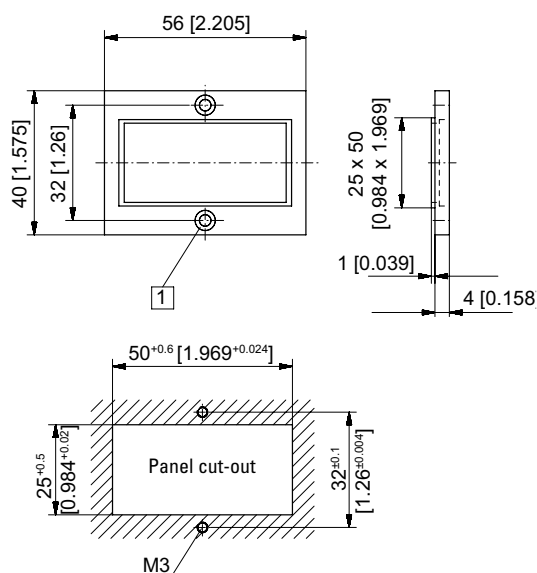| LCD pulse counters	With count direction DC or difference counter AC+DC (battery)	Codix 131

Dimensions

Dimensions in mm [inch]

Front bezel for clip mounting (included in delivery)

Front bezel for screw mounting (included in delivery)
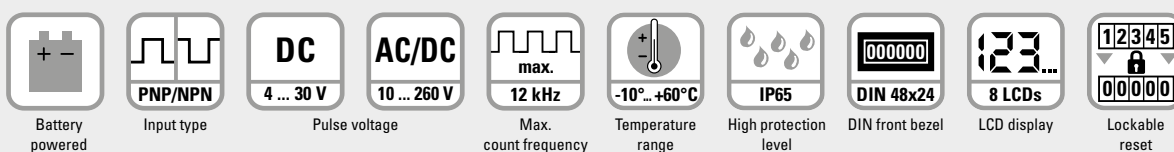

1 Countersinking Af3, DIN 74

Pulse counters, electronic

LCD pulse counters	Adding or subtracting (battery)	Codix 130

The Codix 130 is a simple battery powered pulse counter for fast and slow count pulses with 8-digit LCD display, optional backlighting, for NPN, PNP and high voltage applications.

PNP/NPN	**DC** **4 … 30 V**	**AC/DC** **10 … 260 V**	**max.** **12 kHz**	**-10°… +60°C**	**IP65**	**DIN 48x24**	**8 LCDs**		
Battery powered	Input type	Pulse voltage	Max. count frequency	Temperature range	High protection level	DIN front bezel	LCD display	Lockable reset	

Powerful

- High quality LCD display with 8 mm high figures.
- Count direction adding and subtracting via control input.
- Battery life approx. 8 years.
- Optional display backlighting.
- Filter function for bounce-free counting with mechanical contacts.
- Count frequency max. 12 kHz.
- High protection level IP65.

Simple

- Screw terminals, RM 5 mm.
- Reset key can be enabled via "Reset Enable" input.
- For positive and negative counting edges, depending on version.
- High voltage version for 10 … 260 V AC/DC voltage pulses.
- Large 8-digit LCD display with 8 mm high figures.

Order code

6.130 . 012 . 8 X X
ⓐ ⓑ

ⓐ *Backlighting*
5 = without
6 = with

ⓑ *Input type: add/sub [1] – single-channel, adding or subtracting counting*

Input type	INP A				INP B			
0 = *add/sub* [1]	0 … 0.7 V DC	count	NPN	7 kHz	0 … 0.7 V DC	count	NPN	30 Hz
2 = *add/sub* [1]	4 … 30 V DC	count	PNP	12 kHz	0 … 0.7 V DC	count	NPN	30 Hz
3 = *add/sub* [1]	10 … 260 V AC/DC	count	AC/DC	30 Hz	10 … 260 V AC/DC	reset	AC/DC	–

Delivery specification
- Pulse counter
- Mounting clip
- Front bezel for screw mounting (T008181) 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
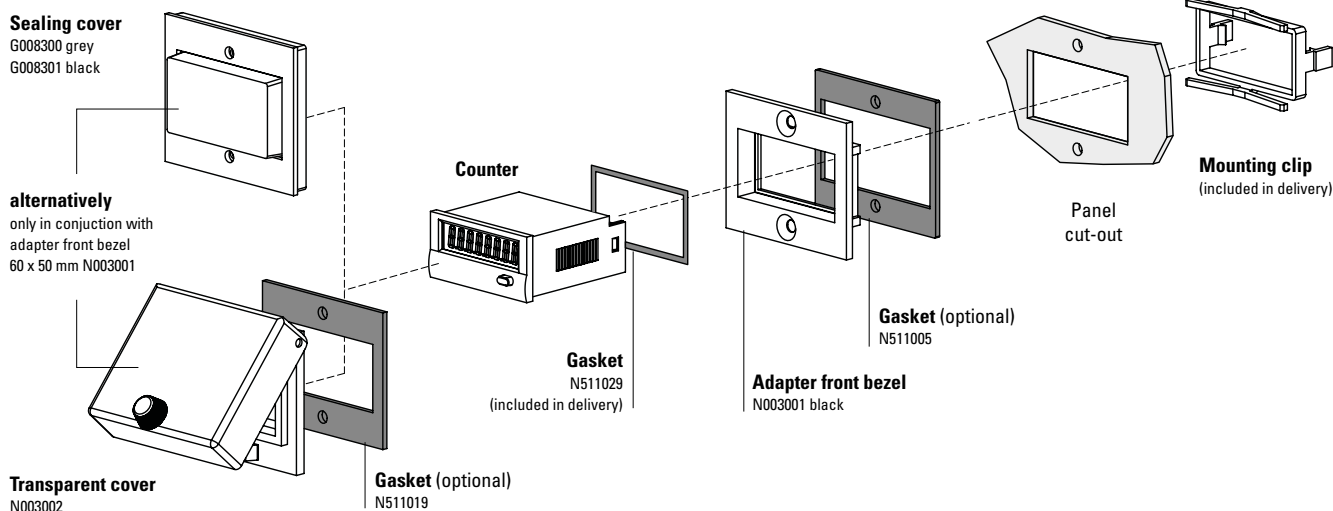- Instruction manual, multilingual

Stock types
6.130.012.850
6.130.012.852
6.130.012.853
6.130.012.862

1) Single-channel, adding or subtracting counting.

Pulse counters, electronic

Accessories / Mounting examples

Sealing cover
G008300 grey
G008301 black

alternatively
only in conjuction with
adapter front bezel
60 x 50 mm N003001

Transparent cover
N003002

Counter

Gasket
N511029
(included in delivery)

Gasket (optional)
N511019

Gasket (optional)
N511005

Adapter front bezel
N003001 black

**Panel
cut-out**

Mounting clip
(included in delivery)

		Type / size	Description		Order no.	suitable gasket
Adapter front bezel		**53 x 28 mm** [2.09 x 1.10"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	**T008165**	**N511015**
				anthracite	T008180	
		56 x 40 mm [2.20 x 1.57"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	**T008161**	**N511045**
				anthracite	T008181	
		72 x 36 mm [2.83 x 1.42"]	for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	**162704Set**	–
		60 x 50 mm [2.36 x 1.97"]	for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	**N003001**	**N511005**
		48 x 48 mm [1.89 x 1.89"]	for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	**T008883**	–
Sealing cover IP65		**K1**	only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / grey	**G008300**	–
				transparent / black	**G008301**	
Transparent cover IP65		**1 Dv** (mounted on bezel)	cover lockable, for cut-out 54 x 29 mm [2.13 x 1.14"], only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / black	**N003002**	**N511019**
Gasket counter			48 x 24 mm (for installation in adapter front bezel)		N511029	
			49 x 25 mm		N511034	
Mounting frame		**cut-out 50 x 25 mm** [1.97 x 0.98"]	via adapter T008180 for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	**G300004**	–
Enclosure blind		**48 x 24 mm** [1.89 x 0.94"]	for cut-out 45 x 22.2 mm [1.77 x 0.94"] and cut-out 50 x 25 mm [1.97 x 0.98"]	anthracite	**G003836**	–

incl. in delivery

LCD pulse counters	Adding or subtracting (battery)	Codix 130

Technical data

General technical data

Display	LCD, 8 digits, 8 mm [0.32"] high
Backlighting	external electrical source 24 V DC ±20 %, 50 mA
Modes	adding or subtracting (selectable)
Display range	-9999999 ... 99999999, with overflow display
Reset	manual and electrical
Working temperature	-10 °C ... +55 °C [+14 °F ... +131 °F] (non-condensing)
Operating temperature	-10 °C ... +60 °C [+14 °F ... +140 °F] (non-condensing)
Storage temperature	-20 °C ... +70 °C [-4 °F ... +158 °F]
Relative humidity	< 85 % (non-condensing)
Altitude	up to 2000 m [6562']

Electrical characteristics

Supply voltage		internal lithium battery approx. 8 years at 20 °C [68 °F]
Device safety	designed to	EN 61010 part 1
	protection class	2
	application area	pollution level 2

Mechanical characteristics

Housing	dark grey RAL 7021
Protection	IP65 (front side)
Weight	approx. 50 g [1.76 oz]

Counting inputs

Counting input of the DC-versions (max. 30 V DC)		
slow counting input		max. 30 Hz NPN
fast counting input		max. 12 kHz (PNP), 7 kHz (NPN)
switching level NPN	LOW	0 ... 0.7 V DC
	HIGH	3 ... 30 V DC
switching level PNP	LOW	0 ... 0.7 V DC
	HIGH	4 ... 30 V DC

Counting input of the high voltage versions (10 ... 260 V DC/V AC)		
optocoupler input		max. 30 Hz
min. pulse time		16 ms
switching level	LOW	0 ... 2 V AC/DC
	HIGH	10 ... 260 V AC/DC

Counting direction switching (only DC-version)		
mode		adding / subtracting
contact input		open collector NPN (switching at 0 V)
switching level NPN	LOW	0 ... 0.7 V DC
	HIGH	3 ... 5 V DC

Reset input (only DC and high voltage)		
minimum pulse time	DC	50 ms
	high voltage	16 ms
contact input DC – NPN	LOW	0 ... 0.7 V DC
	HIGH	3 ... 30 V DC
high voltage input		10 ... 260 V AC/DC

Electrical reset key locking (for DC and high voltage)		
contact input		open collector NPN (switching at 0 V)
switching level NPN	LOW	0 ... 0.7 V DC
	HIGH	3 ... 5 V DC

Approvals

UL compliant in accordance with	File no. E128604

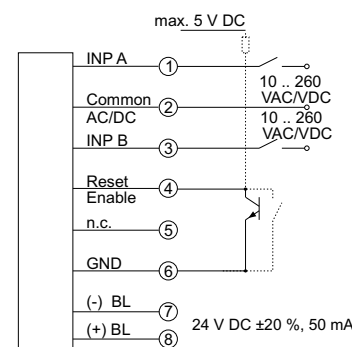| CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU
Low Voltage Directive	2014/35/EU

Terminal assignment

DC type: 6.130.012.8x0
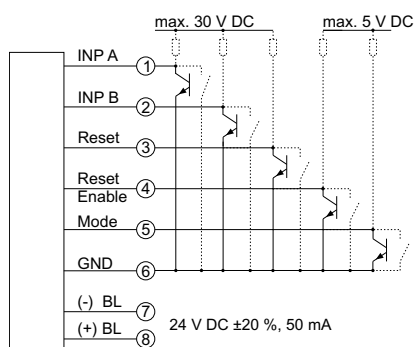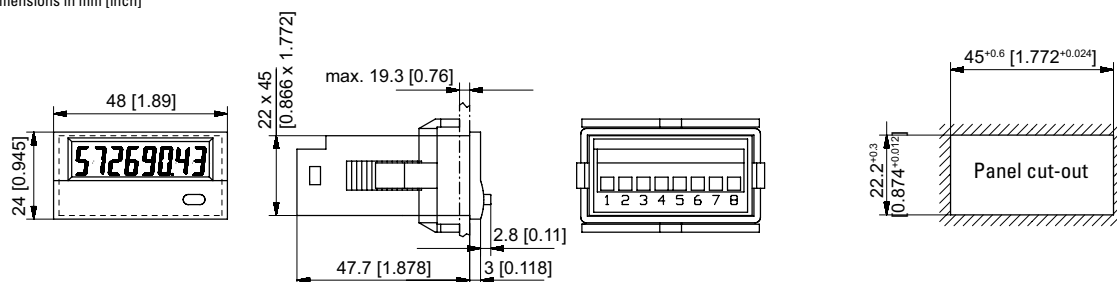
DC type: 6.130.012.8x2
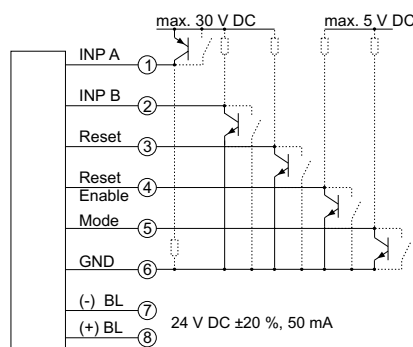
AC type: 6.130.012.8x3

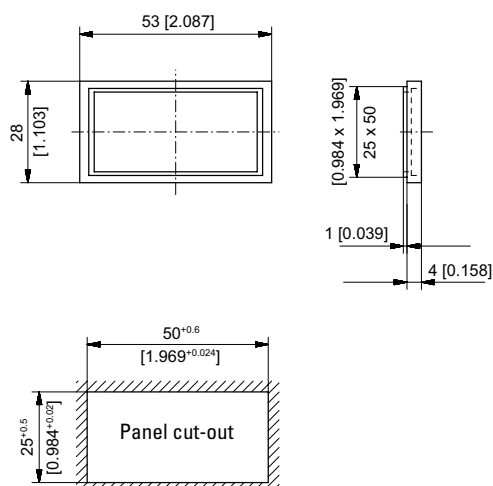

BL = backlighting

Pulse counters, electronic

LCD pulse counters	Adding or subtracting (battery)	Codix 130

Dimensions

Dimensions in mm [inch]

48 [1.89]

24 [0.945]

22 x 45 [0.866 x 1.772]

max. 19.3 [0.76]

47.7 [1.878]

3 [0.118]

2.8 [0.11]

1 2 3 4 5 6 7 8

45$^{+0.6}$ [1.772$^{+0.024}$]

22.2$^{+0.3}$ [0.874$^{+0.012}$]

Panel cut-out

Front bezel for clip mounting (included in delivery)

53 [2.087]

28 [1.103]

25 x 50 [0.984 x 1.969]

1 [0.039]

4 [0.158]

50$^{+0.6}$ [1.969$^{+0.024}$]

25$^{+0.5}$ [0.984$^{+0.02}$]

Panel cut-out

Front bezel for screw mounting (included in delivery)

56 [2.205]

40 [1.575]

32 [1.26]

[1]

25 x 50 [0.984 x 1.969]

1 [0.039]

4 [0.158]

50$^{+0.6}$ [1.969$^{+0.024}$]

25$^{+0.5}$ [0.984$^{+0.02}$]

Panel cut-out

32$^{+0.1}$ [1.26$^{+0.004}$]

M3
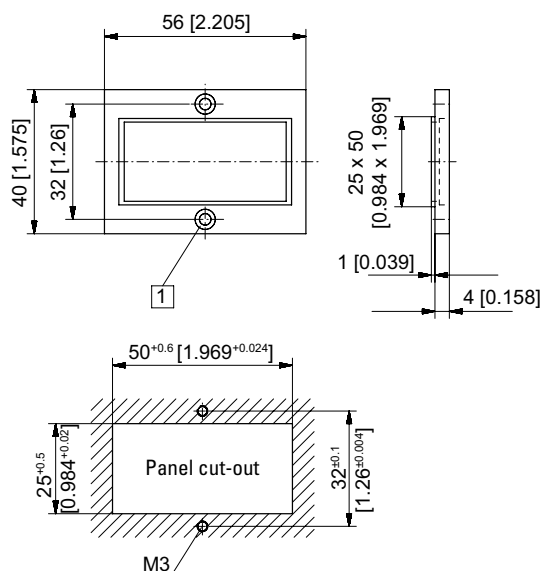
[1] Countersinking Af3, DIN 74

Multifunction devices, electronic

LED dual function displays	Universal with dual functions, 4 combinations (AC+DC)	Codix 54U

The Codix 54U is a voltage-powered dual function counter with 4 functions in one device:

Counter with 2 totalizing ranges, totalizer and timer, totalizer and frequency meter, timer with 2 time ranges.

For fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.

DC 10 … 30 V	AC 10 … 240 V	DIN 96x48	-20°… +65°C	IP65			max. 60 kHz	1/sec - 1/min		t / Hz HRA
Supply voltage		DIN front bezel	Temperature range	High protection level	Plug-in screw terminal	Menu-driven programming	Pulse counter/ Totalizer	Frequency meter/ tachometer	Timer	Frequency meter HRA

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, 14 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.
  - Pressing the right key switches between displays.
- 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.
- Separate factors for frequency- and pulse counting.
- AC or DC supply voltage.
- Inputs: as an alternative to the HTL inputs, devices with a 5 V DC input level are available, for use as parallel displays for PLCs.
- Timer specials: timer or hours-run meter with various Start /Stop measurements, time range settings in hours, minutes or seconds, with decimal point. Resolutions up to 1/1000 can be programmed.

Order code

6.54U . 012 . XX0
      a b

a *Supply voltage*
0 = 100 … 240 V AC, ±10 %
3 = 10 … 30 V DC

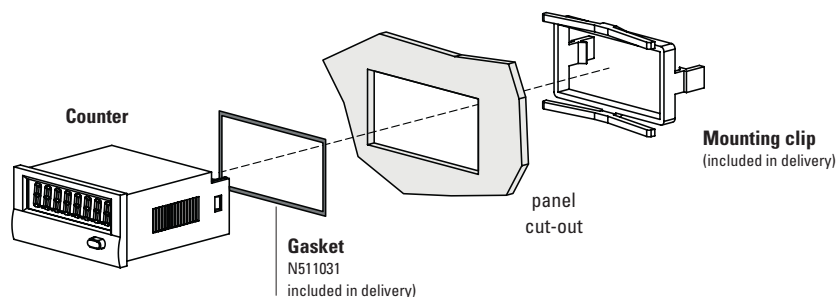**b** *Input switching level*
0 = Standard (HTL)
A = 4 … 30 V DC

Delivery specification
· Digital display
· Mounting clip
· Gasket
· 2 plug-in screw terminals
· Instruction manual, multilingual

Multifunction devices, electronic

Accessories / Mounting examples

Counter

Gasket
N511031
included in delivery)

panel
cut-out

Mounting clip
(included in delivery)

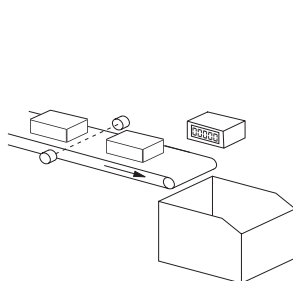|		Type / size	Description		Order no.	
Gasket counter			96 x 49 mm [3.78 x 1.93"]		N511031	
Mounting frame		**cut-out 92 x 45 mm [3.62 x 1.77"]**	for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	grey	G300005	–
Screw terminal (Replacement part)			1 ... 7, pitch 3.81	7 pin	N100387	
			1 ... 2, pitch 5.08	2 pin	N100133	

incl. in delivery

Multifunction devices, electronic

LED dual function displays	Universal with dual functions, 4 combinations (AC+DC)	Codix 54U

Technical data

General technical data

Display	6 digit, red 7 segment LED display; 14 mm [0.55"] high
Data backup	EEPROM
Operating temperature 10 … 26 V DC	-20 °C … +65 °C [-4 °F … +149 °F] (non-condensing)
Storage temperature	-25 °C … +70 °C [-13 °F … +158 °F]
Relative humidity	< 85 % (non-condensing)
Altitude	up to 2000 m [6562']

Electrical characteristics

Supply voltage	10 … 30 V DC, with reverse polarity protection 100 … 240 V AC, ±10 %
Current consumption	max. 50 mA, 8 VA
Device safety	
designed to	EN 61010 part 1
protection class	2
application area	pollution level 2

Mechanical characteristics

Housing	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 150 g [5.29 oz]

Inputs

Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency [1]	max. 60 kHz, can be damped to 30 Hz
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 standard version (HTL)	
DC supply voltage LOW	0 … 0.2 x U_B [V DC]
HIGH	0.6 x U_B … 30 V DC
AC supply voltage LOW	0 … 4 V DC
HIGH	12 … 30 V DC
Input switching level at 4 … 30 V DC	
LOW	0 … 2 V DC
HIGH	4 … 30 V DC
Accuracy	
frequency meter / tachometer	< 0.1 %
timer	< 50 ppm

Outputs

Sensor supply voltage (AC version)	24 V DC ±15 %/100 mA

Approvals

UL compliant in accordance with	File no. E128604
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU
Low Voltage Directive	2014/35/EU

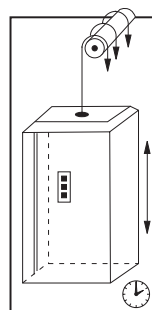1) Details see manual

Multifunction devices, electronic

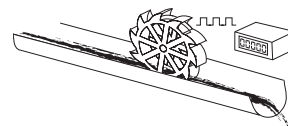## Applications for dual functions

- Pulse and frequency (speed)
  e.g. production data acquisition: total piece count and speed on OEM equipment, flow rate measuring systems – total flow and current flow
- 2 pulse counters
  Measurement of batch and total piece count or of daily production count and total count values
- Pulse and time (maintenance counter)
  Used in the lift industry as trip counters and hours-run meters and on production machines for piece and time counting, flow and time measurement, materials handling time and quantities
- 2 timers
  Measurement of total time and orderspecific times, maintenance intervals and total time, time of day and total time

Piece count on conveyor and production speed
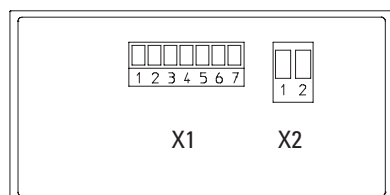
Trip counter and hours-run

Flow rate and total volume

Block diagram

Supply voltage:
100 ... 240 V AC, ±10 %
10...30 V DC

Count input

Reset input

A

B

µ processor

Display

Keypad

Terminal assignment

X1   X2

Connection X1

PIN	AC version	DC version
1	n.c.	
2	n.c.	
3	Reset	
4	INP B	
5	INP A	
6	GND out	n.c.
7	+24 V out	n.c.

Connection X2

PIN	AC version	DC version
1	100 ... 240 V AC, ±10 %	0 V DC (GND)
2	100 ... 240 V AC, ±10 %	10 ... 30 V DC

Function of the inputs INP A, INP B

Counter with 2 totalizing ranges:
INP A: Dynamic count input counter 1 and counter 2
INP B: Inactive

Totalizer and timer:
INP A: Dynamic count input for totalizer
INP B: Start/Stop or gate input for timer

Totalizer and frequency meter:
INP A: Dynamic count input/frequency input
INP B: Inactive

Timer with 2 time ranges:
INP A: Start input (depends on input type)
INP B: Start/Stop or gate input for timer (depends on input type)
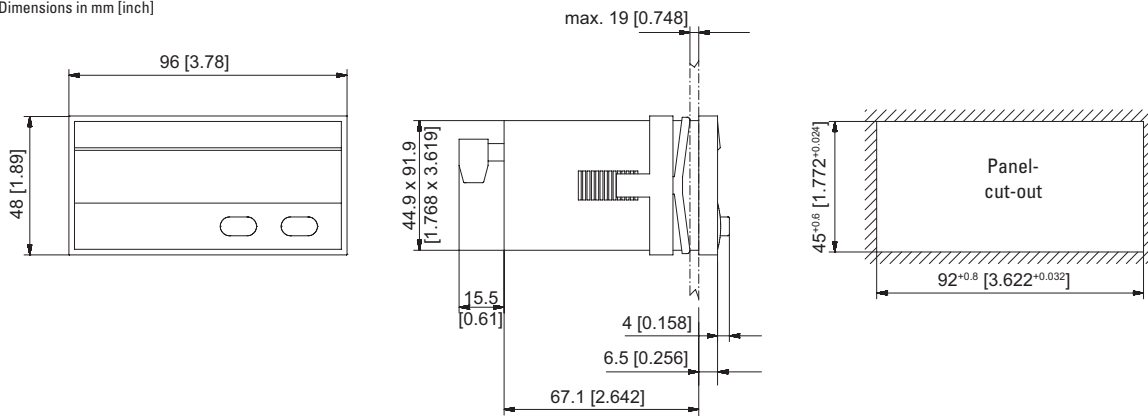
4

Multifunction devices, electronic

Dimensions

Dimensions in mm [inch]

max. 19 [0.748]

96 [3.78]

48 [1.89]

44.9 x 91.9 [1.768 x 3.619]

15.5 [0.61]

4 [0.158]

6.5 [0.256]

67.1 [2.642]

$45^{+0.6}$ [$1.772^{+0.024}$]

$92^{+0.8}$ [$3.622^{+0.032}$]

Panel-cut-out

Multifunction devices, electronic

LED dual function displays	6 count modes with tachometer (AC+DC)	Codix 54P

The Codix 54P is a voltage-powered pulse counter/ position display with 4 different count input modes and separate tachometer.

With separate inputs, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.

DC 10 ... 30 V	**AC** 10 ... 240 V	**000000** DIN 96x48	-20°... +65°C	**IP65**	Plug-in screw terminal	ProG	**max.** 30 kHz	**00000** 1/sec - 1/min	**Position**	t / Hz **HRA**
Supply voltage		DIN front bezel	Temperature range	High protection level	Plug-in screw terminal	Menu-driven programming	Pulse counter/ Totalizer	Frequency meter/ tachometer	Position display	Frequency meter HRA

Powerful

- Fast count and frequency input – input frequency max. 30 kHz (can be damped to 30 Hz for mechanical contacts).
- Robust housing – IP65 protected.
- Very bright LED display, 14 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.
  - Pressing the right key switches between displays.
- 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.
- Separate factors for frequency and pulse counting.
- 4 different count input modes for the position display:
  2-channel input for detecting count direction, difference or adding mode, quadrature x1, x2 or x4. 1 separate input for rotary speed and speed, display in 1/min or 1/sec.
- AC or DC supply with sensor supply voltage.
- Inputs: as an alternative to the HTL inputs, devices with a 5 V DC input level are available, for use as parallel displays for PLCs.

Order code

6.54P . 012 . X X 0
         ⓐ ⓑ

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

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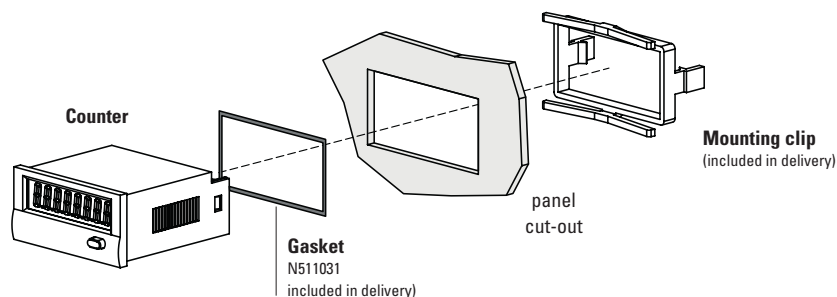0 = Standard (HTL)
A = 4 ... 30 V DC

Delivery specification
· Digital display
· Mounting clip
· Gasket
· 2 plug-in screw terminals
· Instruction manual, multilingual

Multifunction devices, electronic

| LED dual function displays | 6 count modes with tachometer (AC+DC) | Codix 54P |

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	–
Screw terminal (Replacement part)			1 ... 7, pitch 3.81	7 pin	N100387	
			1 ... 2, pitch 5.08	2 pin	N100133	

incl. in delivery

LED dual function displays	6 count modes with tachometer (AC+DC)	Codix 54P

Technical data

General technical data

Display	6 digit, red 7 segment LED display; 14 mm [0.55"] high
Data backup	EEPROM
Operating temperature	-20 °C ... +65 °C [-4 °F ... +149 °F] (non-condensing)
Storage temperature	-25 °C ... +70 °C [-13 °F ... +158 °F]
Relative humidity	< 85 % (non-condensing)
Altitude	up to 2000 m [6562']

Electrical characteristics

Supply voltage		10 ... 30 V DC, with reverse polarity protection 100 ... 240 V AC, ±10 %
Current consumption		max. 50 mA, 8 VA
Device safety	designed to	EN 61010 part 1
	protection class	2
	application area	pollution level 2

Mechanical characteristics

Housing	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 150 g [5.29 oz]

Inputs

Polarity of inputs		programmable, NPN or PNP for all inputs
Input resistance		approx. 5 kΩ
Counting frequency [1]		max. 30 kHz, can be damped to 30 Hz
Display range	tachometer	1/min or 1/sec
Minimum pulse duration of the reset input		5 ms
Input switching level standard version (HTL)		
DC supply voltage	LOW	0 ... 0.2 x U_B [V DC]
	HIGH	0.6 x U_B ... 30 V DC
AC supply voltage	LOW	0 ... 4 V DC
	HIGH	12 ... 30 V DC
Input switching level at 4 ... 30 V DC		
	LOW	0 ... 2 V DC
	HIGH	4 ... 30 V DC
Accuracy		
	frequency meter/tachometer	< 0.1 %

Outputs

Sensor supply voltage (AC version)	24 V DC ±15 %/100 mA

Approvals

UL compliant in accordance with	File no. E128604
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU
Low Voltage Directive	2014/35/EU

1) Details see manual

Multifunction devices, electronic

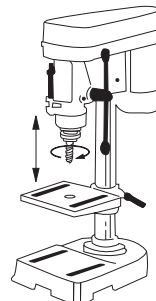| LED dual function displays	6 count modes with tachometer (AC+DC)	Codix 54P

Applications for frequency and position display / totalizer
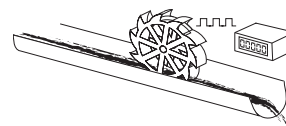
Position and rotary speed applications, e.g.

- OEM equipment or retrofitting to drilling machines
- OEM equipment on flow measuring plant, e.g. total flow and current flow
- Total piece count and pieces per minute, where the pulse counting occurs in the add/subtract mode, in order to deduct reject parts
- Production data acquisition: total piece count and production speed, or absolute distance traversed and current speed
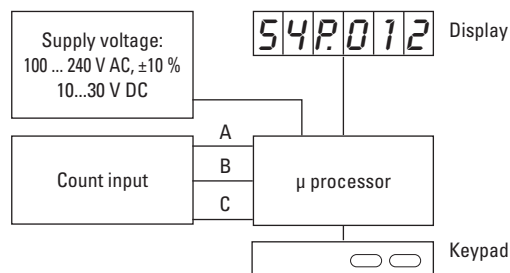
Piece count on conveyor and production speed
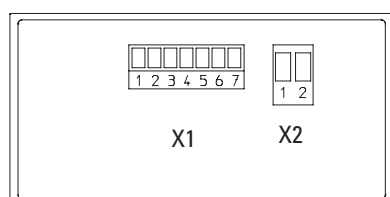
Rotary speed and drilling depth

Flow rate and total volume

Block diagram

Supply voltage:
100 ... 240 V AC, ±10 %
10...30 V DC

Display

Count input

A
B
C

μ processor

Keypad

Terminal assignment

Connection X1

PIN	AC version	DC version
1	n.c.	
2	n.c.	
3	INP C (frequency)	
4	INP B (frequency)	
5	INP A (Count)	
6	GND out	n.c.
7	+24 V out	n.c.

Connection X2

PIN	AC version	DC version
1	100 ... 240 V AC, ±10 %	0 V DC (GND)
2	100 ... 240 V AC, ±10 %	10 ... 30 V DC

Function of the inputs INP A, INP B, INP C

INP A and INP B:
Two channel pulse input with 6 different count modes

INP C:
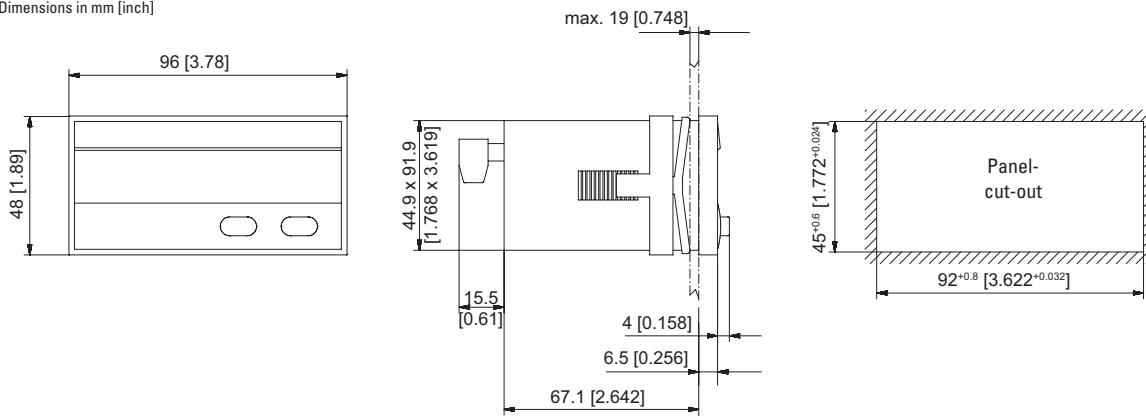Frequency input, single channel

Multifunction devices, electronic

Dimensions

Dimensions in mm [inch]

96 [3.78]

48 [1.89]

max. 19 [0.748]

44.9 x 91.9 [1.768 x 3.619]

15.5 [0.61]

4 [0.158]

6.5 [0.256]

67.1 [2.642]

45$^{+0.6}$ [1.772$^{+0.024}$]

Panel-cut-out

92$^{+0.8}$ [3.622$^{+0.032}$]

Multifunction devices, electronic

LED dual function displays	Universal with dual functions, 4 combinations (DC)	Codix 52U

The Codix 52U is a voltage-powered dual function counter with 4 functions in one device:

Counter with 2 totalizing ranges, totalizer and timer, totalizer and frequency meter, timer with 2 time ranges.
For fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.

DC 10 ... 30 V	DIN 48x24	-20°... +65°C	IP65	ProG	max. 60 kHz	1/sec - 1/min		t / Hz HRA
Supply voltage	DIN front bezel	Temperature range	High protection level	Menu-driven programming	Pulse counter/ Totalizer	Frequency meter/ tachometer	Timer	Frequency meter HRA

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.
  - Pressing the right key switches between displays.
- 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.
- Separate factors for frequency- and pulse counting.
- 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.
- Timer specials: timer or hours-run meter with various Start/Stop measurements, time range settings in hours, minutes or seconds, with decimal point. Resolutions up to 1/1000 can be programmed.

Order code

6.52U . 012 . 3 X 0
          ⓐ

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

Delivery specification
· Counter
· Mounting clip
· Front bezel for screw mounting (T008181) 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
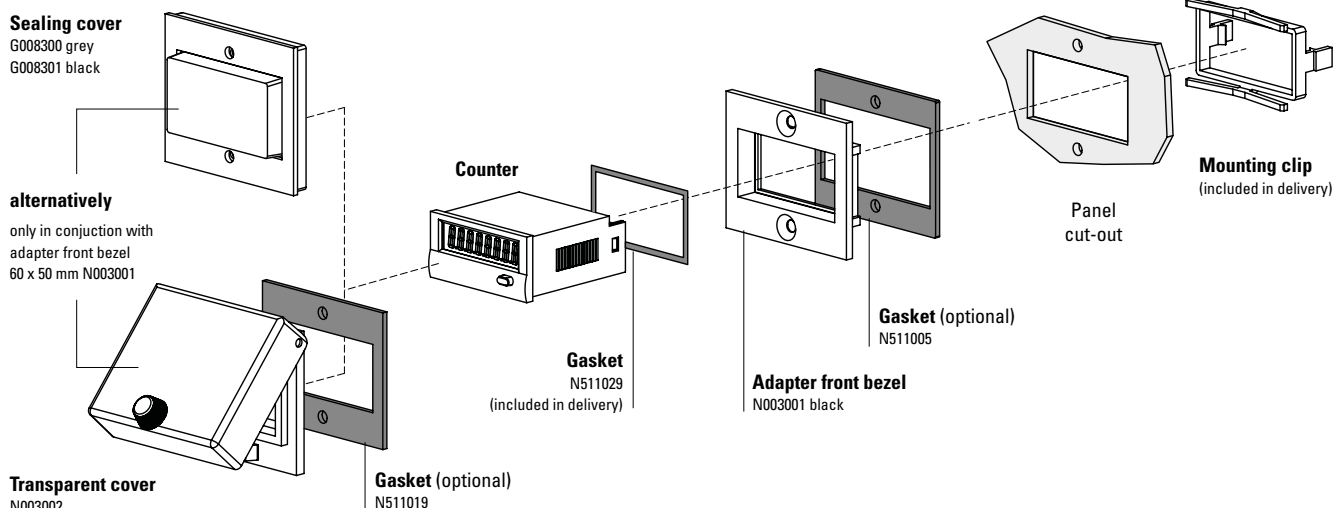· Instruction manual, multilingual

Stock types
6.52U.012.300

Multifunction devices, electronic

LED dual function displays	Universal with dual functions, 4 combinations (DC)	Codix 52U

Accessories / Mounting examples

Sealing cover
G008300 grey
G008301 black

alternatively

only in conjuction with
adapter front bezel
60 x 50 mm N003001

Transparent cover
N003002

Gasket (optional)
N511019

Counter

Gasket
N511029
(included in delivery)

Adapter front bezel
N003001 black

Gasket (optional)
N511005

Panel cut-out

Mounting clip
(included in delivery)

		Type / size	Description		Order no.	suitable gasket
Adapter front bezel		**53 x 28 mm** [2.09 x 1.10"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black / anthracite	**T008165** / T008180	**N511015**
		56 x 40 mm [2.20 x 1.57"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black / anthracite	**T008161** / T008181	**N511045**
		72 x 36 mm [2.83 x 1.42"]	for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	**162704Set**	–
		60 x 50 mm [2.36 x 1.97"]	for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	**N003001**	**N511005**
		48 x 48 mm [1.89 x 1.89"]	for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	**T008883**	–
Sealing cover IP65		**K1**	only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / grey / transparent / black	**G008300** / **G008301**	–
Transparent cover IP65		**1 Dv** (mounted on bezel)	cover lockable, for cut-out 54 x 29 mm [2.13 x 1.14"], only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / black	**N003002**	**N511019**
Gasket counter			48 x 24 mm (for installation in adapter front bezel) 49 x 25 mm		N511029 / N511034	
Mounting frame		**cut-out 50 x 25 mm** [1.97 x 0.98"]	via adapter T008180 for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	**G300004**	–
Enclosure blind		**48 x 24 mm** [1.89 x 0.94"]	for cut-out 45 x 22.2 mm [1.77 x 0.94"] and cut-out 50 x 25 mm [1.97 x 0.98"]	anthracite	**G003836**	–

incl. in delivery

LED dual function displays	Universal with dual functions, 4 combinations (DC)	Codix 52U

Technical data

General technical data

Display		6 digits, red 7 segment LED display; 8 mm [0.32"] high
Data backup		EEPROM
Operating temperature	10 ... 26 V DC	-20 °C ... +65 °C [-4 °F ... +149 °F]
	> 26 ... 30 V DC	-20 °C ... +55 °C [-4 °F ... +131 °F] (non-condensing)
Storage temperature		-25 °C ... +70 °C [-13 °F ... +158 °F]

Electrical characteristics

Supply voltage	10 ... 30 V DC, with integrated reverse polarity protection
Current consumption	max. 40 mA

Mechanical characteristics

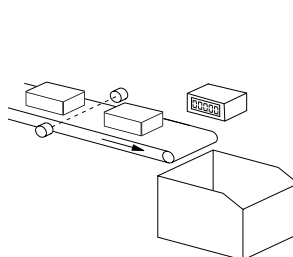|	
Housing	front panel mount 48 x 24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g [1.76 oz]
Vibration resistance acc. to EN 60068-2-6	10 ... 55 Hz / 1 mm [0.04"] / 30 min
Shock resistance acc. to EN 60068-2-27	100 G: 2 ms
	10 G: 6 ms

Inputs

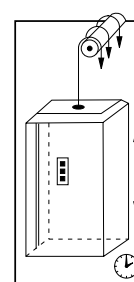|		
Polarity of inputs		programmable, NPN or PN
Input resistance		approx. 5 kΩ
Counting frequency [1]		max. 60 kHz, can be damped to 30 Hz
Display range	timer	0.001 s ... 999999 h
	frequency meter	1/min or 1/sec
Minimum pulse duration of the reset input		5 ms
Input switching level (HTL)	LOW	$0 ... 0.2 \times U_B$ [V DC]
	HIGH	$0.6 \times U_B ... 30$ V DC
Input switching level at 4 ... 30 V DC	LOW	0 ... 2 V DC
	HIGH	4 ... 30 V DC
Accuracy		< 0.1 % frequency meter, tachometer

Approvals

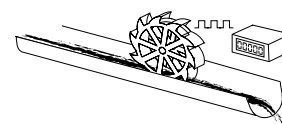|	
UL compliant in accordance with	File no. E128604
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU

Applications for dual functions

- Pulse and frequency (speed)
  e.g. production data acquisition: total piece count and speed on OEM equipment, flow rate measuring systems – total flow and current flow
- 2 pulse counters
  Measurement of batch and total piece count or of daily production count and total count values
- Pulse and time (maintenance counter)
  Used in the lift industry as trip counters and hours-run meters and on production machines for piece and time counting, flow and time measurement, materials handling time and quantities
- 2 timers
  Measurement of total time and orderspecific times, maintenance intervals and total time, time of day and total time

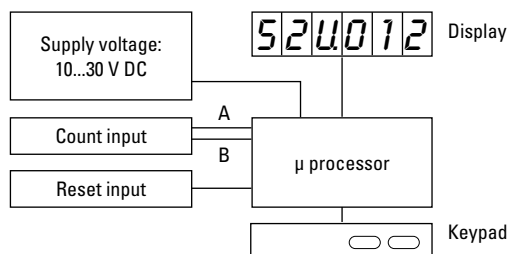Piece count on conveyor and production speed

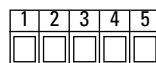Trip counter and hours-run

Flow rate and total volume

---

1) Details see manual

Multifunction devices, electronic

| LED dual function displays | Universal with dual functions, 4 combinations (DC) | Codix 52U |

Block diagram

Supply voltage: 10...30 V DC

Count input — A

Reset input — B

µ processor

Display

Keypad

Terminal assignment

| 1 | 2 | 3 | 4 | 5 |

PIN	DC version
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset

Function of the inputs INP A, INP B

Counter with 2 totalizing ranges:
INP A: Dynamic count input counter 1 and counter 2
INP B: Inactive

Totalizer and timer:
INP A: Dynamic count input for totalizer
INP B: Start/Stop or gate input for timer

Totalizer and frequency meter:
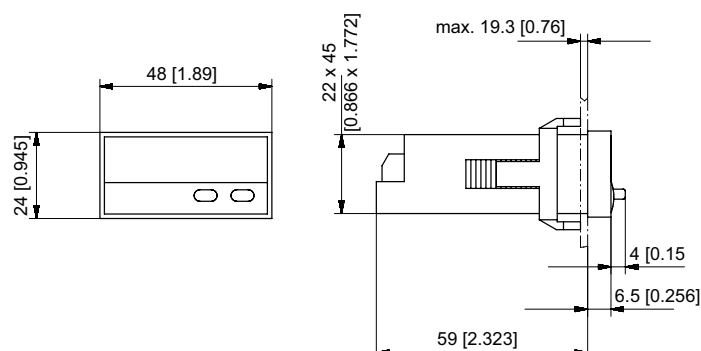INP A: Dynamic count input/frequency input
INP B: Inactive

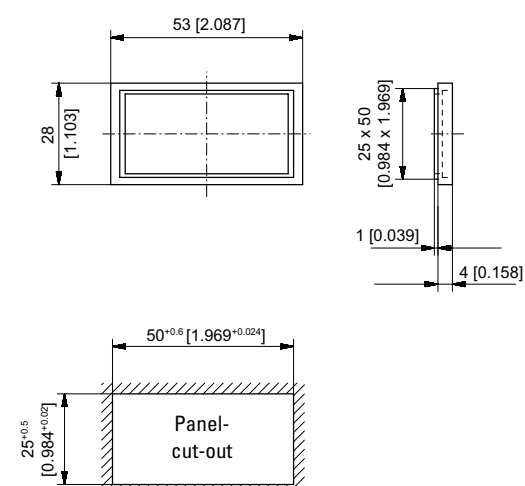**Timer with 2 time ranges:**
INP A: Start input (depends on input type)
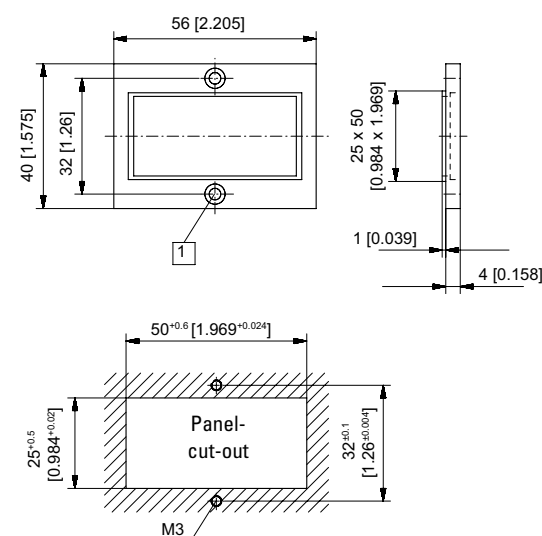INP B: Start/Stop or gate input for timer (depends on input type)

Dimensions

Dimensions in mm [inch]

Front bezel for clip mounting (included in delivery)

Front bezel for screw mounting (included in delivery)

1 Countersinking Af3, DIN 74

Pulse counters, electronic

LED pulse counters	2 counters with separate scaling (DC)	Codix 52T

The Codix 52T is a voltage powered dual pulse counter with a common input and separate scaling, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals and display switching between A and B.

DC 10 … 30 V	**000000** DIN 48x24	-20°… +65°C	IP65	ProG		max. 60 kHz	PNP/NPN
Supply voltage	DIN front bezel	Temperature range	High protection level	Menu-driven programming	Operation with gloves	Pulse counter/ Totalizer	Input type

Powerful

- Fast count input – input frequency max. 60 kHz.
- Robust housing – IP65 protected.
- Very bright LED display, 8 mm high.
- Single channel dual totalizer
  - programmable for positive (PNP) or 0V (NPN) switching input pulses.
  - fast count inputs with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts.
- 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.
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt.
- Individually programmable scaling for both counters multiplication and division factor (0.0001...99.9999), to display corresponding units in, for example, litres, length or packaging size.
- Simple display switching between counters 1 and 2.
- DC supply voltage.
- As an alternative to the HTL units, models are also available with a fixed signal level threshold >4 V DC for use with TTL signals.
- Reset manual or electrical, programmable separately for both counters (the reset can also be locked out).
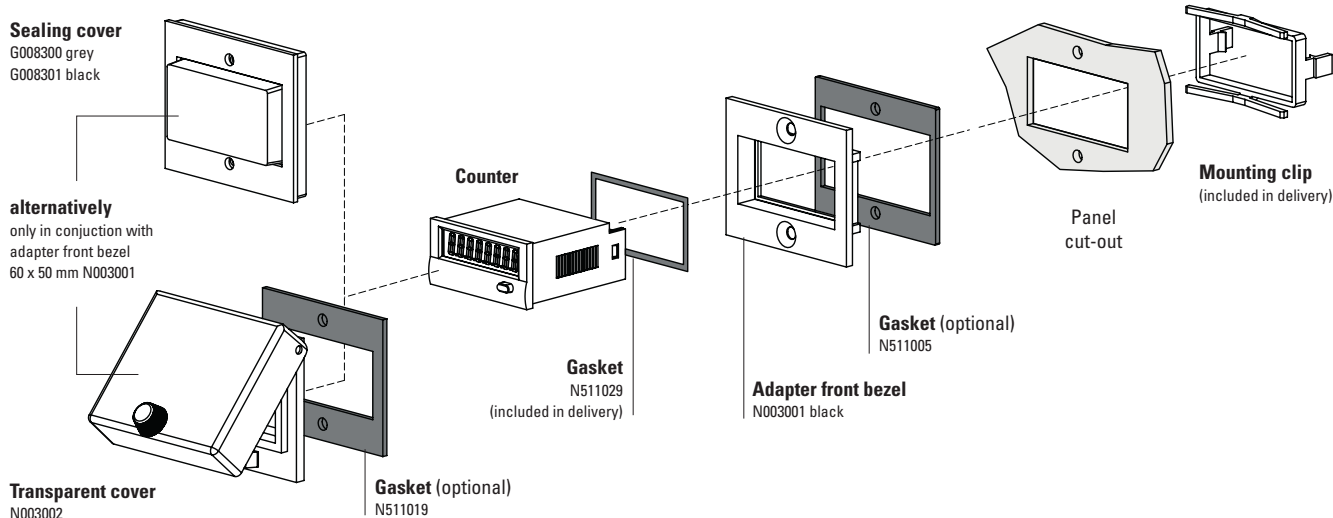
Order code

6.52T . 012 . 3 X 0
          (a)

(a) *Input switching level*
0 = Standard (HTL)
A = Fixed level
   LOW   0 … 2 V DC
   HIGH 4 … 30 V DC

Delivery specification
- Counter
- Mounting clip
- Front bezel for screw mounting (T008181) 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

Pulse counters, electronic

LED pulse counters	2 counters with separate scaling (DC)	Codix 52T

Accessories / Mounting examples

Sealing cover
G008300 grey
G008301 black

alternatively
only in conjuction with
adapter front bezel
60 x 50 mm N003001

Transparent cover
N003002

Counter

Gasket
N511029
(included in delivery)

Gasket (optional)
N511019

Gasket (optional)
N511005

Adapter front bezel
N003001 black

**Panel
cut-out**

Mounting clip
(included in delivery)

		Type / size	Description		Order no.	suitable gasket
Adapter front bezel		**53 x 28 mm [2.09 x 1.10"]**	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	**T008165**	**N511015**
				anthracite	T008180	
		56 x 40 mm [2.20 x 1.57"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	**T008161**	**N511045**
				anthracite	T008181	
		72 x 36 mm [2.83 x 1.42"]	for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	**162704Set**	–
		60 x 50 mm [2.36 x 1.97"]	for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	**N003001**	**N511005**
		48 x 48 mm [1.89 x 1.89"]	for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	**T008883**	–
Sealing cover IP65		**K1**	only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / grey	**G008300**	–
				transparent / black	**G008301**	
Transparent cover IP65		**1 Dv** (mounted on bezel)	cover lockable, for cut-out 54 x 29 mm [2.13 x 1.14"], only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / black	**N003002**	**N511019**
Gasket counter			48 x 24 mm (for installation in adapter front bezel)		**N511029**	
			49 x 25 mm		**N511034**	
Mounting frame		**cut-out 50 x 25 mm [1.97 x 0.98"]**	via adapter T008180 for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	**G300004**	–
Enclosure blind		**48 x 24 mm [1.89 x 0.94"]**	for cut-out 45 x 22.2 mm [1.77 x 0.94"] and cut-out 50 x 25 mm [1.97 x 0.98"]	anthracite	**G003836**	–

incl. in delivery

Pulse counters, electronic

LED pulse counters	2 counters with separate scaling (DC)	Codix 52T

Technical data

General technical data

Display		6 digits, red 7 segment LED display; 8 mm [0.32"] high
Data backup		EEPROM
Operating temperature	10 … 26 V DC	-20 °C … +65 °C [-4 °F … +149 °F]
	> 26 … 30 V DC	-20 °C … +55 °C [-4 °F … +131 °F] (non-condensing)
Storage temperature		-25 °C … +70 °C [-13 °F … +158 °F]

Electrical characteristics

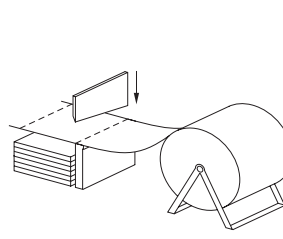|	
Supply voltage	10 … 30 V DC, with integrated reverse polarity protection
Current consumption	max. 40 mA

Mechanical characteristics

Housing	front panel mount 48 x 24 mm [1.89 x 0.94"] 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	100 G: 2 ms
	10 G: 6 ms

Inputs

Polarity of inputs		programmable, NPN or PNP for all inputs
Input resistance		approx. 5 kΩ
Counting frequency		max. 60 kHz, can be damped to 30 Hz
Minimum pulse duration of the reset input		5 ms
Input switching level (HTL)	LOW	$0 … 0.2 \times U_B$ (V DC)
	HIGH	$0.6 \times U_B … 30$ V DC
Input switching level at 4 … 30 V DC	LOW	0 … 2 V DC
	HIGH	4 … 30 V DC

Approvals

UL compliant in accordance with	File no. E128604
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU

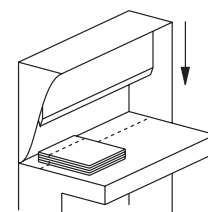## Application examples for the dual totalizer

- Logging of piece count and overall total
- Totalizing of flow volumes, quantities and other scalable media
- Counting tasks, such as quantities and piece counting
- Accessories, OEM or retrofit equipment for production machinery
- Piece counting on die-cutters, presses, extruders, wood-processing machines, drilling machines, pick-and-place machines, guillotines, special vehicles
- Measurement of two different values in just one device: e.g. with 2 inputs both the piece count and the number of packages can be counted
- Recording of the total results from 2 work-shifts
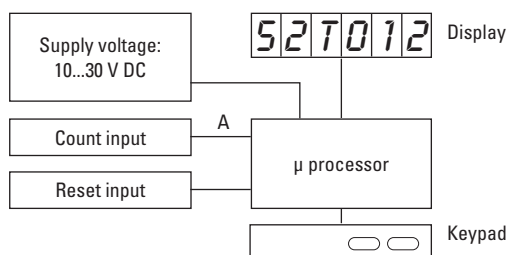
Total piece count as well as packing units

Individual and total quantities

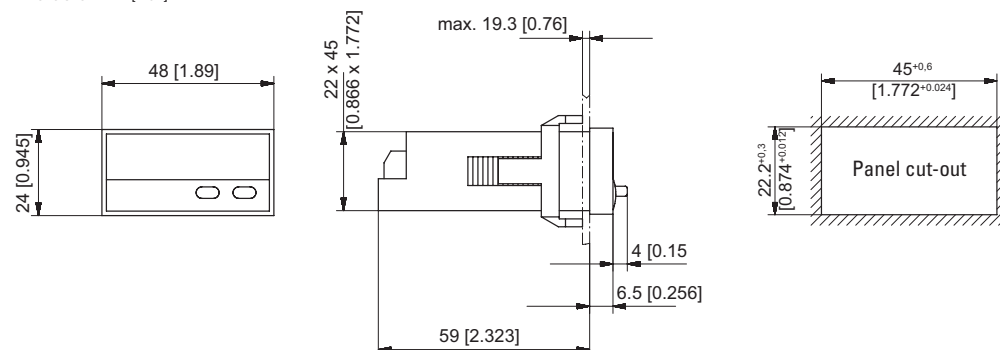Individual and total quantity from 2 work-shifts

Block diagram

Supply voltage: 10...30 V DC

Count input

Reset input

A

µ processor

52T012 Display

Keypad

Terminal assignment

PIN	
1	10 … 30 V DC
2	0 V GND
3	INP A
4	-
5	Reset

Pulse counters, electronic

Dimensions

Dimensions in mm [inch]

48 [1.89]

24 [0.945]

22 x 45 [0.866 x 1.772]

max. 19.3 [0.76]

4 [0.15]

6.5 [0.256]

59 [2.323]

45 +0.6 [1.772 +0.024]

22.2 +0.3 [0.874 +0.012]

Panel cut-out

Front bezel for clip mounting (included in delivery)

53 [2.087]

28 [1.103]

25 x 50 [0.984 x 1.969]

1 [0.039]

4 [0.158]

50 +0.6 [1.969 +0.024]

25 +0.5 [0.984 +0.02]

Panel cut-out

Front bezel for screw mounting (included in delivery)

56 [2.205]

40 [1.575]

32 [1.26]

1

25 x 50 [0.984 x 1.969]

1 [0.039]

4 [0.158]

50 +0.6 [1.969 +0.024]

25 +0.5 [0.984 +0.02]

Panel cut-out

32 ±0.1 [1.26 ±0.004]

M3
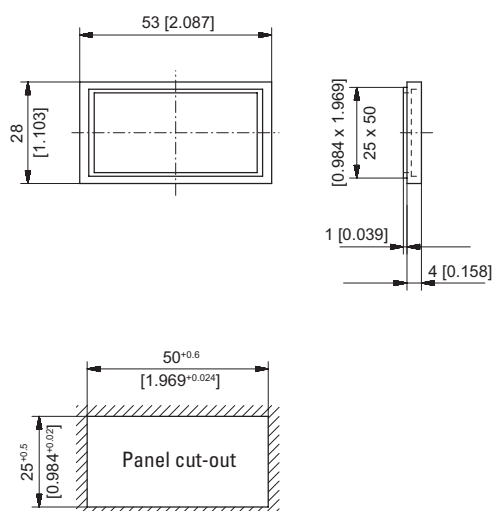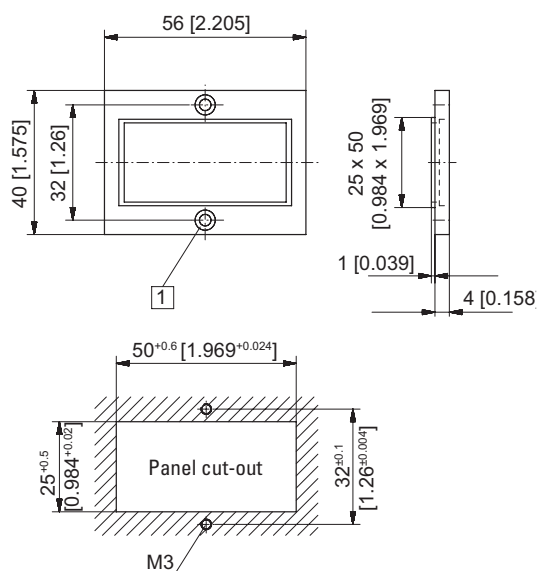
1 Countersinking Af3, DIN 74

Multifunction devices, electronic

LED dual function displays	6 count modes with tachometer (DC)	Codix 52P

The Codix 52P is a voltage-powered pulse counter/ position display with 4 different count input modes and separate tachometer.

With separate inputs, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.

DC 10 ... 30 V	000000 DIN 48x24	-20°... +65°C	IP65	ProG	max. 30 kHz	1/sec - 1/min	Position	t / Hz HRA
Supply voltage	DIN front bezel	Temperature range	High protection level	Menu-driven programming	Pulse counter/ Totalizer	Frequency meter/ tachometer	Position display	Frequency meter HRA

Powerful

- Fast count and frequency input – input frequency max. 30 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.
  - Pressing the right key switches between displays.
- 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.
- Separate factors for frequency- and pulse counting.
- 4 different count input modes for the position display:
  2-channel input for detecting count direction, difference or adding mode, quadrature x1, x2 or x4. 1 separate input for rotary speed and speed, display in 1/min or 1/sec.
- 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.

Order code

6.52P	.	0	1	2	.	3	X	0
								a

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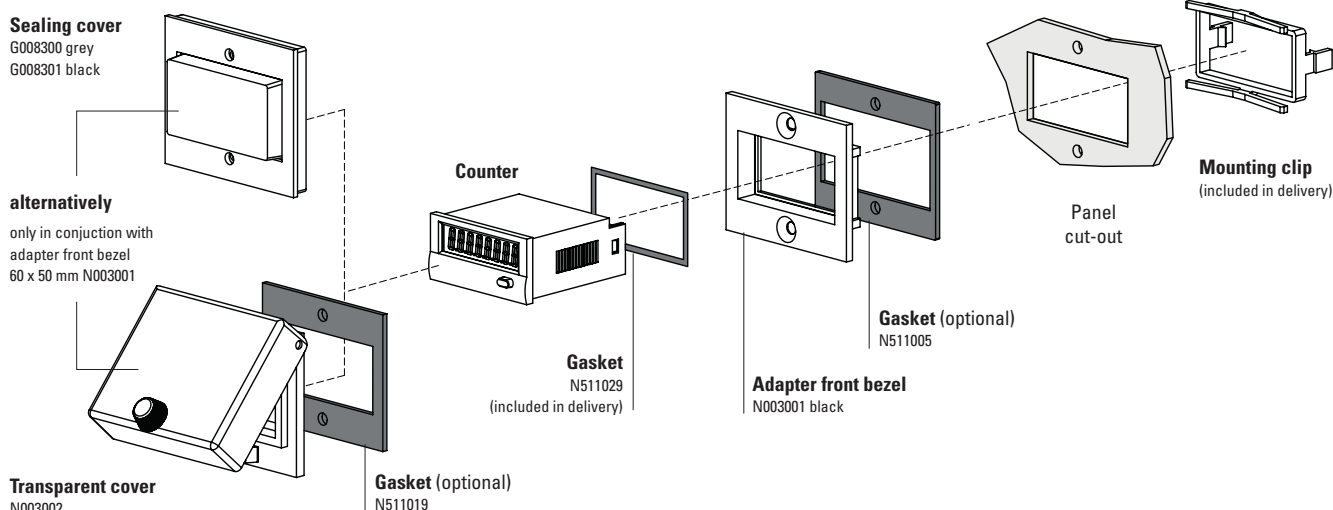0 = Standard (HTL)
A = 4 ... 30 V DC

Delivery specification
· Counter
· Mounting clip
· Front bezel for screw mounting (T008181) 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 dual function displays	6 count modes with tachometer (DC)	Codix 52P

Accessories / Mounting examples

Sealing cover
G008300 grey
G008301 black

alternatively

only in conjuction with
adapter front bezel
60 x 50 mm N003001

Transparent cover
N003002

Counter

Gasket (optional)
N511019

Gasket
N511029
(included in delivery)

Adapter front bezel
N003001 black

Gasket (optional)
N511005

Panel cut-out

Mounting clip
(included in delivery)

		Type / size	Description			Order no.	suitable gasket
Adapter front bezel		**53 x 28 mm** [2.09 x 1.10"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	T008165	N511015	
				anthracite	T008180		
		56 x 40 mm [2.20 x 1.57"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	T008161	N511045	
				anthracite	T008181		
		72 x 36 mm [2.83 x 1.42"]	for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	162704Set	–	
		60 x 50 mm [2.36 x 1.97"]	for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	N003001	N511005	
		48 x 48 mm [1.89 x 1.89"]	for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	T008883	–	
Sealing cover IP65		K1	only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / grey	G008300	–	
				transparent / black	G008301		
Transparent cover IP65		1 Dv (mounted on bezel)	cover lockable, for cut-out 54 x 29 mm [2.13 x 1.14"], only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / black	N003002	N511019	
Gasket counter			48 x 24 mm (for installation in adapter front bezel)		N511029		
			49 x 25 mm		N511034		
Mounting frame		cut-out **50 x 25 mm** [1.97 x 0.98"]	via adapter T008180 for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	G300004	–	
Enclosure blind		**48 x 24 mm** [1.89 x 0.94"]	for cut-out 45 x 22.2 mm [1.77 x 0.94"] and cut-out 50 x 25 mm [1.97 x 0.98"]	anthracite	G003836	–	

incl. in delivery

Multifunction devices, electronic

LED dual function displays	6 count modes with tachometer (DC)	Codix 52P

Technical data

General technical data

Display		6 digits, red 7 segment LED display; 8 mm [0.32"] high
Data backup		EEPROM
Operating temperature	10 ... 26 V DC	-20 °C ... +65 °C [-4 °F ... +149 °F]
	> 26 ... 30 V DC	-20 °C ... +55 °C [-4 °F ... +131 °F] (non-condensing)
Storage temperature		-25 °C ... +70 °C [-13 °F ... +158 °F]

Electrical characteristics

Supply voltage	10 ... 30 V DC, with integrated reverse polarity protection
Current consumption	max. 40 mA

Mechanical characteristics

Housing	front panel mount 48 x 24 mm [1.89 x 0.94"] 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	100 G: 2 ms 10 G: 6 ms

Inputs

Polarity of inputs		programmable, NPN or PNP for all inputs
Input resistance		approx. 5 kΩ
Counting frequency [1]		max. 30 kHz, can be damped to 30 Hz
Display range	tachometer	1/min or 1/sec
Minimum pulse duration of the reset input		5 ms
Input switching level (HTL)	LOW	$0 ... 0.2 \times U_B$ [V DC]
	HIGH	$0.6 \times U_B ... 30$ V DC
Input switching level at 4 ... 30 V DC	LOW	0 ... 2 V DC
	HIGH	4 ... 30 V DC
Accuracy		< 0.1 % frequency meter, tachometer

Approvals

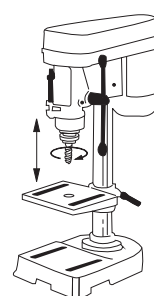|		
UL compliant in accordance with		File no. E128604
CE compliant in accordance with		
	EMC Directive	2014/30/EU
	RoHS Directive	2011/65/EU

Applications for frequency and position display / totalizer

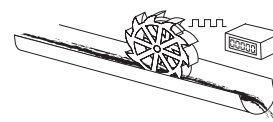Position and rotary speed applications, e.g.

- OEM equipment or retrofitting to drilling machines
- OEM equipment on flow measuring plant, e.g. total flow and current flow
- Total piece count and pieces per minute, where the pulse counting occurs in the add/subtract mode, in order to deduct reject parts
- Production data acquisition: total piece count and production speed, or absolute distance traversed and current speed

Piece count on conveyor and production speed
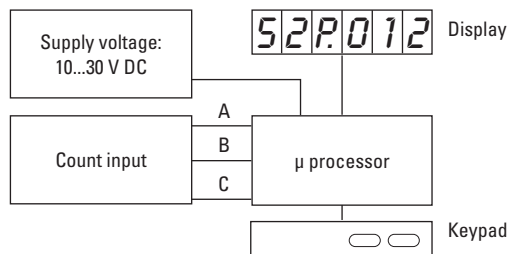

Rotary speed and drilling depth

Flow rate and total volume

1) Details see manual

Multifunction devices, electronic

| LED dual function displays | 6 count modes with tachometer (DC) | Codix 52P |

Block diagram

Supply voltage: 10...30 V DC

Count input

µ processor

Display

52P.012

Keypad

A
B
C

Terminal assignment

| 1 | 2 | 3 | 4 | 5 |

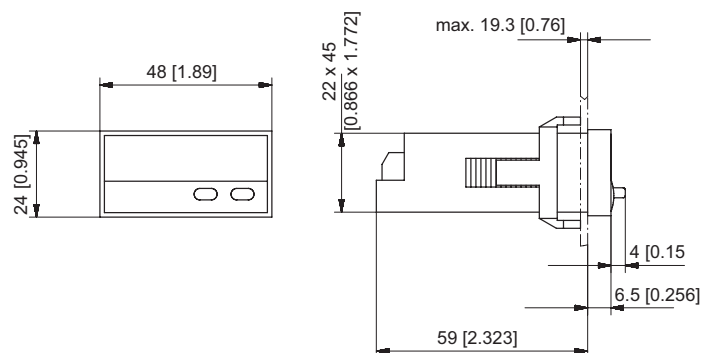| PIN	DC version
1	10 ... 30 V DC
2	0 V GND
3	INP A (count)
4	INP B (count)
5	INP C (frequency)

Function of the inputs INP A, INP B, INP C

INP A and INP B:
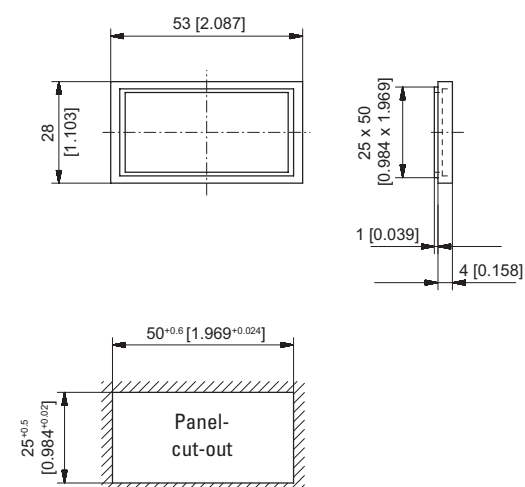Two channel pulse input with 6 different count modes
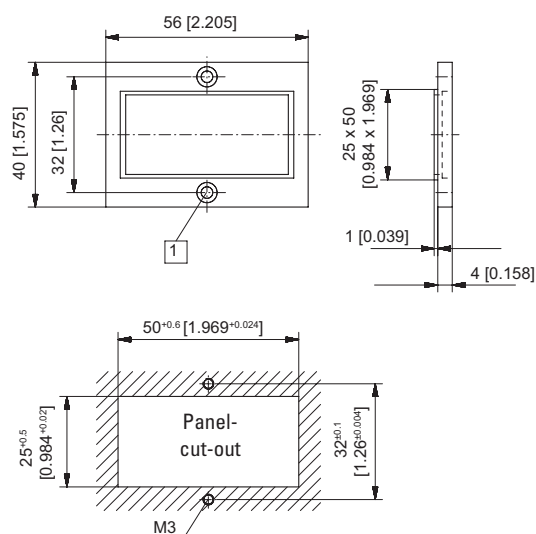
INP C:
Frequency input, single channel

Dimensions

Dimensions in mm [inch]

48 [1.89]

24 [0.945]

22 x 45 [0.866 x 1.772]

max. 19.3 [0.76]

4 [0.15]

6.5 [0.256]

59 [2.323]

45$^{+0,6}$ [1.772$^{+0.024}$]

22.2$^{+0,3}$ [0.874$^{+0.012}$]

Panel-cut-out

Front bezel for clip mounting (included in delivery)

53 [2.087]

28 [1.103]

25 x 50 [0.984 x 1.969]

1 [0.039]

4 [0.158]

50$^{+0.6}$ [1.969$^{+0.024}$]

25$^{+0,5}$ [0.984$^{+0.02}$]

Panel-cut-out

Front bezel for screw mounting (included in delivery)

56 [2.205]

40 [1.575]

32 [1.26]

25 x 50 [0.984 x 1.969]

1 [0.039]

4 [0.158]

1

50$^{+0.6}$ [1.969$^{+0.024}$]

25$^{+0,5}$ [0.984$^{+0.02}$]

32$^{±0,1}$ [1.26$^{+0.004}$]

Panel-cut-out

M3

1 Countersinking Af3, DIN 74

Pulse counters, electronic

LED pulse counters	2 counters with separate inputs and separate scaling (DC)	Codix 52C

The Codix 52C is a voltage powered dual pulse counter with separate inputs and separate scaling, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals and display switching between A, B, A-B, A+B, A/B, (A-B)/A [%].

DC 10 ... 30 V	DIN 48x24	-20°... +65°C	IP65	ProG		max. 25 kHz	PNP/NPN
Supply voltage	DIN front bezel	Temperature range	High protection level	Menu-driven programming	Operation with gloves	Pulse counter/ Totalizer	Input type

Powerful

- Single channel dual totalizer with 2 separate inputs
  - programmable for positive (PNP) or 0V (NPN) switching input pulses
  - fast count inputs with an input frequency of max. 25 kHz. Can be damped to 30 Hz for mechanical contacts.
- Robust housing – IP65 protected.
- Very bright LED display, 8 mm high.
- 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.
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt.
- Individually programmable scaling for inputs A and B multiplication and division factor (0.0001...99.9999), to display corresponding units in, for example, litres, length or packaging size.
- Simple display switching from A to B or A+B, A-B, A/B, (A-B)/A [%].
- DC supply voltage.
- As an alternative to the HTL units, models are also available with a fixed signal level threshold >4 ... 30 V DC for use with TTL signals.
- Reset manual or electrical, programmable separately for both counters (the reset can also be locked out).

Order code	6.52C . 012 . 3 X 0 (a)	

(a) *Input switching level*
0 = Standard (HTL)
A = 4 ... 30 V DC
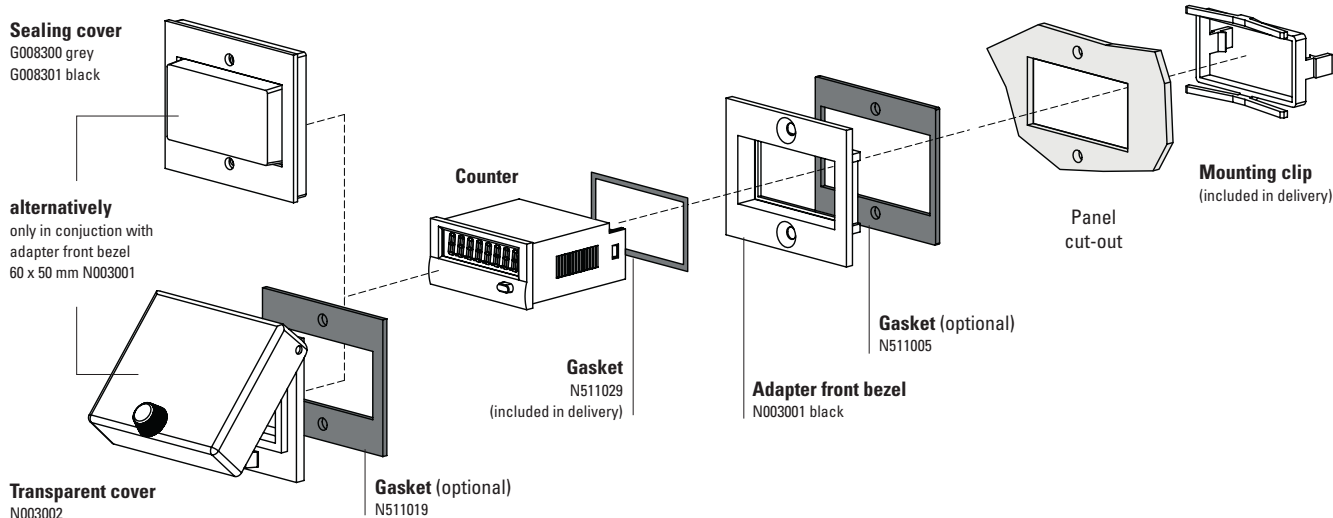   LOW 0 ... 2 V DC
    HIGH 4 ... 30 V DC

Delivery specification
· Counter
· Mounting clip
· Front bezel for screw mounting (T008181) 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 pulse counters	2 counters with separate inputs and separate scaling (DC)	Codix 52C

Accessories / Mounting examples

Sealing cover
G008300 grey
G008301 black

alternatively
only in conjuction with
adapter front bezel
60 x 50 mm N003001

Transparent cover
N003002

Counter

Gasket
N511029
(included in delivery)

Gasket (optional)
N511019

Adapter front bezel
N003001 black

Gasket (optional)
N511005

Panel cut-out

Mounting clip
(included in delivery)

		Type / size	Description		Order no.	suitable gasket
Adapter front bezel		**53 x 28 mm** [2.09 x 1.10"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black anthracite	**T008165** T008180	**N511015**
		56 x 40 mm [2.20 x 1.57"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black anthracite	**T008161** T008181	**N511045**
		72 x 36 mm [2.83 x 1.42"]	for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	**162704Set**	–
		60 x 50 mm [2.36 x 1.97"]	for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	**N003001**	**N511005**
		48 x 48 mm [1.89 x 1.89"]	for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	**T008883**	–
Sealing cover IP65		**K1**	only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / grey	**G008300**	–
				transparent / black	**G008301**	
Transparent cover IP65		**1 Dv** (mounted on bezel)	cover lockable, for cut-out 54 x 29 mm [2.13 x 1.14"], only in conjuction with adapter front bezel 60 x 50 mm N003001	transparent / black	**N003002**	**N511019**
Gasket counter			48 x 24 mm (for installation in adapter front bezel)		N511029	
			49 x 25 mm		N511034	
Mounting frame		**cut-out 50 x 25 mm** [1.97 x 0.98"]	via adapter T008180 for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	**G300004**	–
Enclosure blind		**48 x 24 mm** [1.89 x 0.94"]	for cut-out 45 x 22.2 mm [1.77 x 0.94"] and cut-out 50 x 25 mm [1.97 x 0.98"]	anthracite	**G003836**	–

incl. in delivery

LED pulse counters	2 counters with separate inputs and separate scaling (DC)	Codix 52C

Technical data

General technical data

Display		6 digits, red 7 segment LED display; 8 mm [0.32"] high
Data backup		EEPROM
Operating temperature	10 ... 26 V DC	-20 °C ... +65 °C [-4 °F ... +149 °F]
	> 26 ... 30 V DC	-20 °C ... +55 °C [-4 °F ... +131 °F] (non-condensing)
Storage temperature		-25 °C ... +70 °C [-13 °F ... +158 °F]

Electrical characteristics

Supply voltage	10 ... 30 V DC, with reverse polarity protection
Current consumption	max. 40 mA

Mechanical characteristics

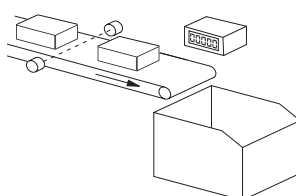| Housing	front panel mount 48 x 24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g [1.76 oz]
Vibration resistance acc. to EN 60068-2-6	10 ... 55 Hz / 1 mm [0.04"] / 30 min
Shock resistance acc. to EN 60068-2-27	100 G: 2 ms
	10 G: 6 ms

Inputs

Polarity of inputs		programmable, NPN or PNP for all inputs
Input resistance		approx. 5 kΩ
Counting frequency		max. 25 kHz, can be damped to 30 Hz
Minimum pulse duration of the reset input		5 ms
Input switching level standard version (HTL)		
	LOW	$0 ... 0.2 \times U_B$ (V DC)
	HIGH	$0.6 \times U_B ... 30$ V DC
Input switching level at 4 ... 30 V DC		
	LOW	0 ... 2 V DC
	HIGH	4 ... 30 V DC

Approvals

UL compliant in accordance with		File no. E128604
CE compliant in accordance with		
	EMC Directive	2014/30/EU
	RoHS Directive	2011/65/EU

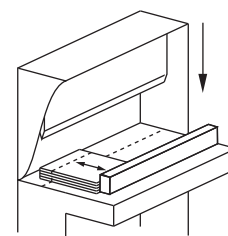## Application examples for the dual totalizer with separate inputs

- Logging of piece count and overall total
- Totalizing of flow volumes, quantities and other scalable
- Counting tasks, such as quantities and piece counting
- Accessories, OEM or retrofit equipment for production machinery
- Piece counting on die-cutters, presses, extruders, wood-processing machines, drilling machines, pick-and-place machines, guillotines, special vehicles
- Measurement of two different values in just one device: e.g. with 2 inputs both the piece count and the number of packages can be counted
- Recording of the total results from 2 work-shifts
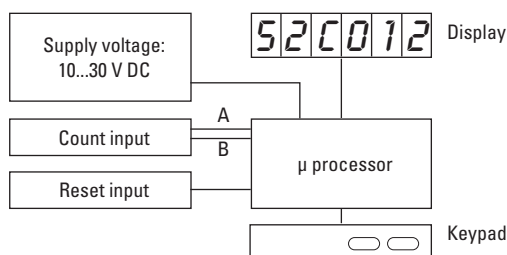
Total piece count as well as packing units

Individual and total quantities

Individual and total quantity from 2 work-shifts

Block diagram

Supply voltage: 10...30 V DC

Count input

Reset input

A

B

µ processor

Display

Keypad

Terminal assignment

1	2	3	4	5

PIN	
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset

Pulse counters, electronic

LED pulse counters	2 counters with separate inputs and separate scaling (DC)	Codix 52C

Dimensions
Dimensions in mm [inch]
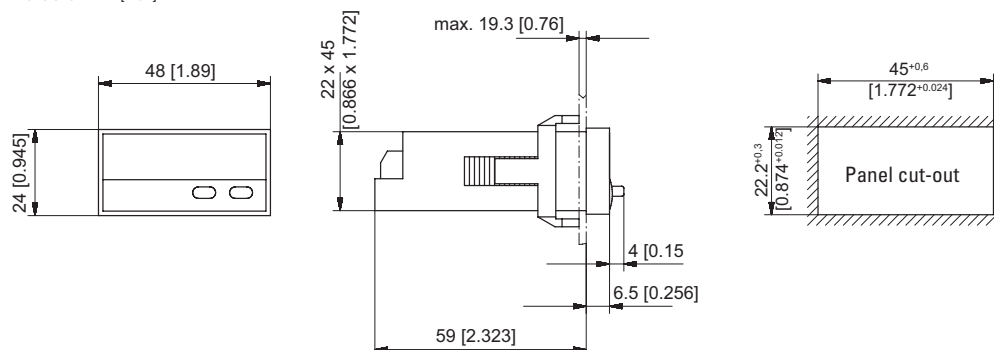
max. 19.3 [0.76]

48 [1.89]

22 x 45 [0.866 x 1.772]

24 [0.945]

4 [0.15]

6.5 [0.256]

59 [2.323]

45 +0,6 [1.772 +0.024]

22.2 +0,3 [0.874 +0.012]

Panel cut-out

Front bezel for clip mounting (included in delivery)

53 [2.087]

28 [1.103]

25 x 50 [0.984 x 1.969]

1 [0.039]

4 [0.158]

50 +0.6 [1.969 +0.024]

25 +0.5 [0.984 +0.02]

Panel cut-out

Front bezel for screw mounting (included in delivery)

56 [2.205]

40 [1.575]

32 [1.26]

25 x 50 [0.984 x 1.969]

1 [0.039]

4 [0.158]

1

50 +0.6 [1.969 +0.024]

25 +0.5 [0.984 +0.02]

Panel cut-out

32 ±0.1 [1.26 +0.004]

M3
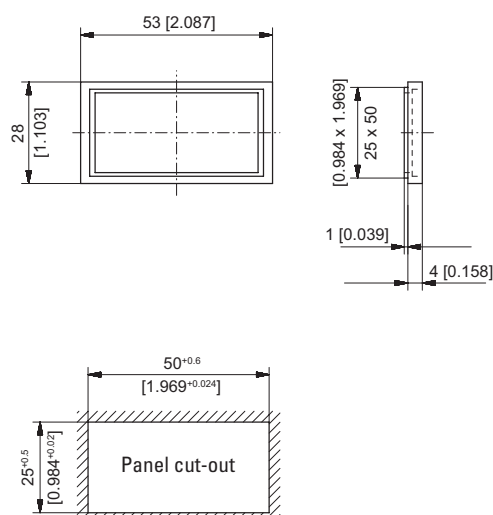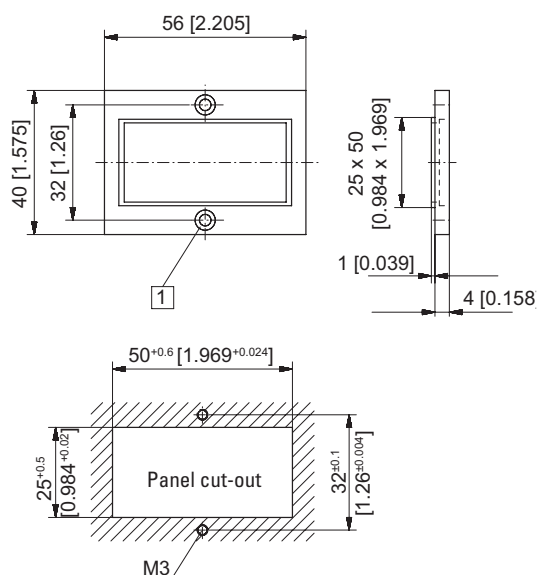
1 Countersinking Af3, DIN 74

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