Multifunction devices, electronic

| 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	DIN 48x24	-20°... +65°C	IP65	ProG	max. 60 kHz	Position	1/sec - 1/min		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 [1]
2 = no output [1]

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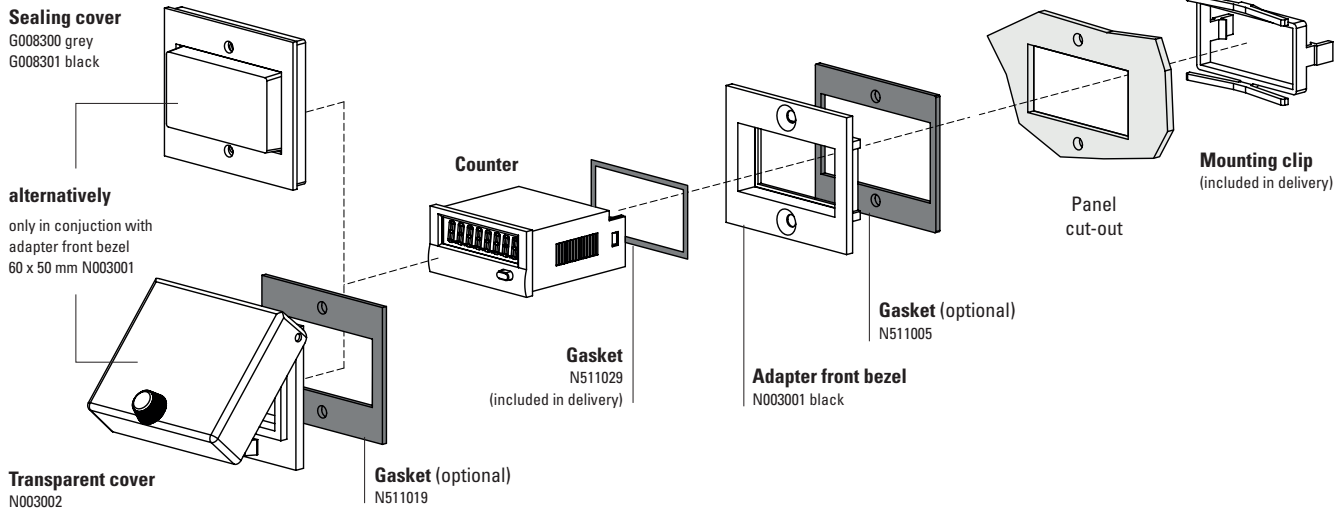0 = Standard (HTL) [1]
A = 4 ... 30 V DC

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

1) Stock types

| 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

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"]	grey black anthracite	T008164 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	–

incl. in delivery

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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
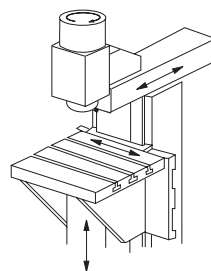
Position or rotary speed on milling machine
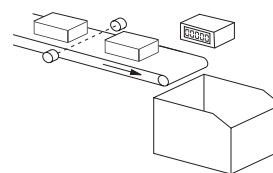
Piece count on conveyor or production speed
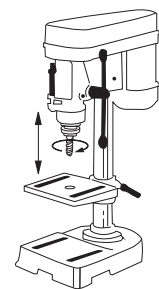
Drilling machine head, speed or drilling depth

[1] Details see manual

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Functions

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

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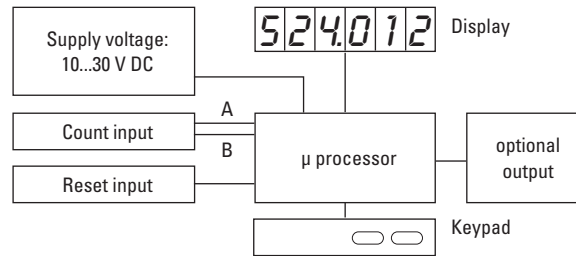Phase discriminator with simple, double or quadruple evaluation

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: 10...30 V DC

Count input — A

Reset input — B

μ processor

Display — 5 2 4 . 0 1 2

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 / 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

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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
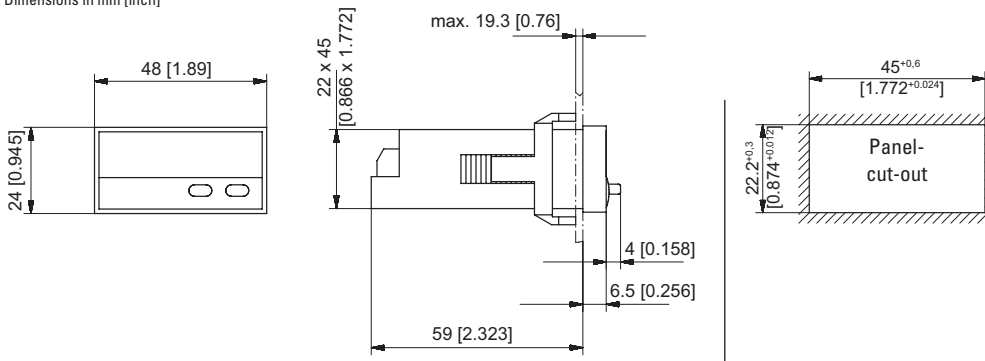
Front bezel for clip mounting (included in delivery)

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
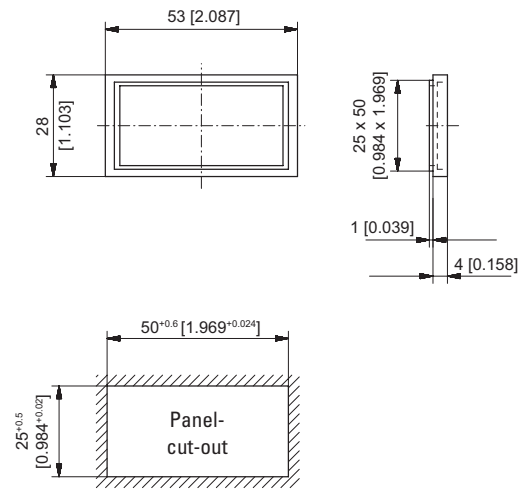
Front bezel for screw mounting (included in delivery)

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]
32 ±0,1 [1.26 +0.004]
Panel-cut-out
M3
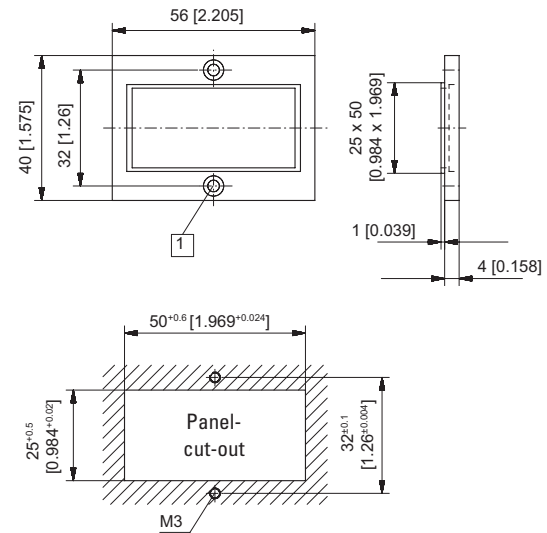
1 Countersinking Af3, DIN 74