Multifunction devices, electronic

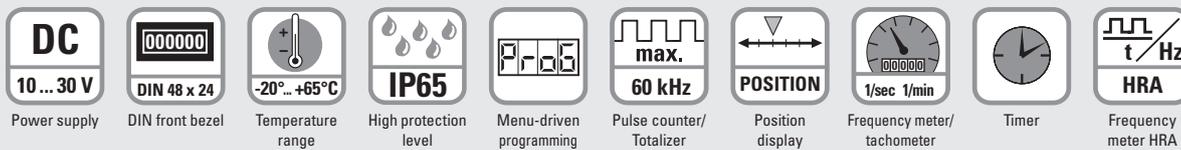| LED multifunction display	Multifunctional – pulse, frequency, time (DC)	Codix 524

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.

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

DC 10 … 30 V Power supply	DIN 48 x 24 DIN front bezel	-20°… +65°C Temperature range	IP65 High protection level	ProG Menu-driven programming	max. 60 kHz Pulse counter/ Totalizer	POSITION Position display	1/sec 1/min Frequency meter/ tachometer	Timer	t /Hz HRA 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

Kübler

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

Accessories	Dimensions in mm [inch]		Order no.
Adapter front bezel, 72 x 36 [2.83 x 1.42]	for cut-out 68 x 33 [2.68 x 1.30] to cut-out 45 x 22.2 [1.77 x 0.87], for counters 48 x 24 [1.89 x 0.94], as set	black and silver anodised	**162704 Set**
Adapter front bezel, 48 x 48 [1.89 x 1.89]	for cut-out 45 x 45 [1.77 x 1.77] to cut-out 45 x 22.2 [1.77 x 0.87], with clip mounting for counters 48 x 24 [1.89 x 0.94]	black	**T008883**
Adapter front bezel, 60 x 50 [2.36 x 1.97]	for cut-out 54 x 29 [2.13 x 1.14] to cut-out 45 x 22.2 [1.77 x 0.87], with screw mounting and gasket for counters 48 x 24 [1.89 x 0.94]	black	**N003001**
Transparent cover, lockable, IP65	for cut-out 54 x 29 [2.13 x 1.14], for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 [1.97 x 0.98] or 45 x 22.2 [1.77 x 0.87]		**N003002**
Sealing cover type K1, IP65	suitable for front bezel 60 x 50 [2.36 x 1.97], for screw mounting of electromech. counters and via adapter front bezel N003001 for counters 48 x 24 [1.89 x 0.94]		**G008301**
Mounting frame with cut-out 50 x 25 [2.36 x 1.97] via separate adapter also for 45 x 22.2 [1.77 x 0.87]	for snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 53 x 28 [2.09 x 1.10] and via separate adapter (T008180) for counters 48 x 24 [1.89 x 0.94]	chromated	**G300004**

Suitable gaskets, other accessories and installation examples for optional accessories can be found in chapter accessories or in the accessories section under: www.kuebler.com/accessories.

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

Power supply	10 ... 30 V DC, with reverse polarity protection
Current consumption	max. 55 mA
EMC standards	EN 55011 class B, EN 61000-6-2, EN 61000-6-3 EN 61326-1
UL approval	file E128604

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

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	LOW	0 ... 2 V DC
4 ... 30 V DC	HIGH	4 ... 30 V DC
Accuracy	tachometer	< 0.1 %
	timer	< 50 ppm

Outputs (optional)

Optocoupler output	max. 30 V, 10 mA

1) Details see manual

Multifunction devices, electronic

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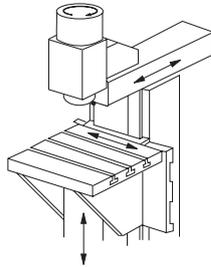
Position or rotary speed
on milling machine
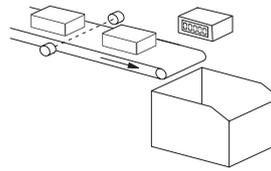
Piece count on conveyor
or production speed
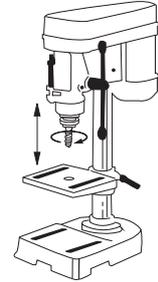
Drilling machine head,
speed or drilling depth

Functions

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

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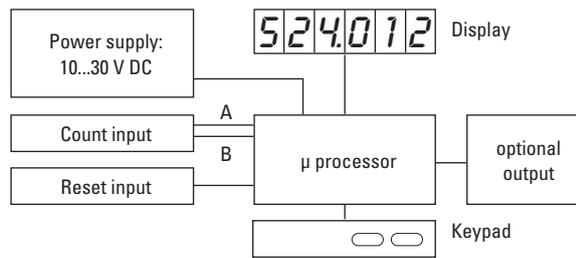Phase discriminator with simple, double or quadruple evaluation

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

Power supply: 10...30 V DC		Display
Count input	A	
Reset input	B	µ processor	optional output
		Keypad

Display shows: 524.012

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

Multifunction devices, electronic

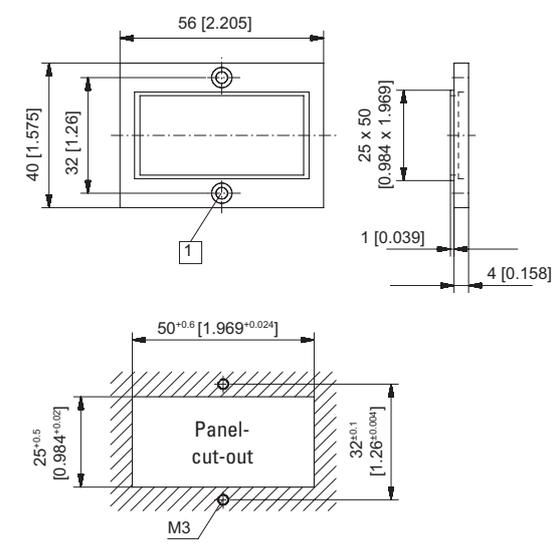| LED multifunction display	Multifunctional – pulse, frequency, time (DC)	Codix 524

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
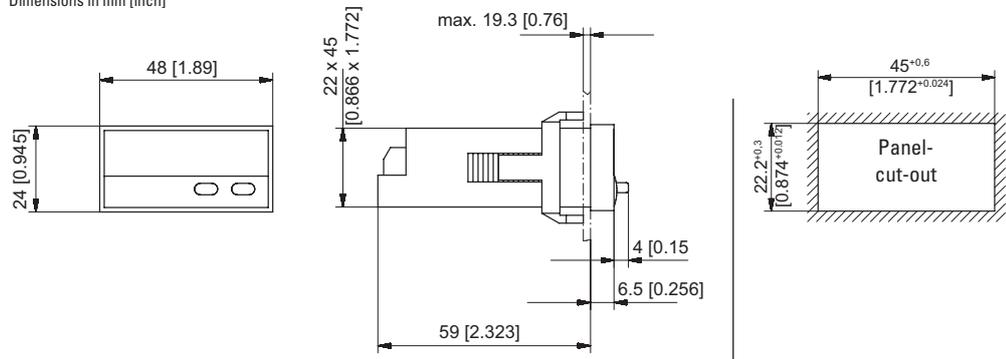
Front bezel for clip mounting (included in delivery)

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
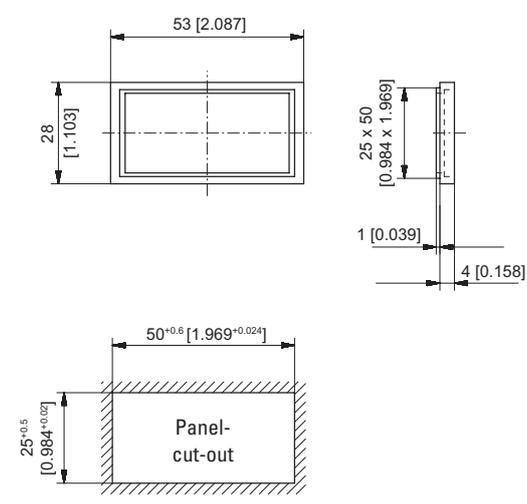
Front bezel for screw mounting (included in delivery)

56 [2.205]

40 [1.575]

32 [1.26]

25 x 50 [0.984 x 1.969]

1 [0.039]

4 [0.158]

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