

Multifunction devices



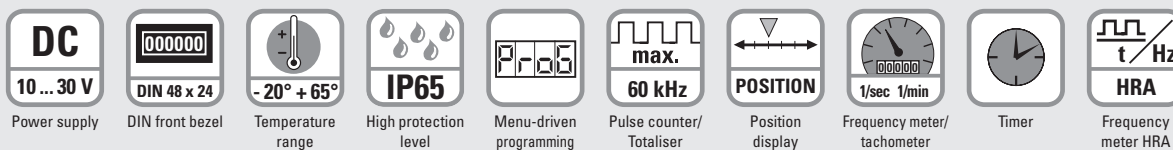
Multifunction devices

Multifunction devices, electronic		Type	Page
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LCD multifunction preset counters	1 or 2 presets – pulse, time – 5 kHz (AC+DC)	Codix 907 / 908	123
	Multifunction – pulse, frequency, time – 1...6 presets (AC+DC)	Codix 923 / 924	126
Multifunction preset counters with multicolour or LED look	Multifunction – pulse, frequency, time – 1...6 presets (AC+DC)	Codix 923 / 924	126
LED multifunction preset counters	Multifunction – pulse, frequency, time (AC+DC)	Codix 716 / 717 (Ex)	133
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The Codix 524 is a voltage-powered multifunction counter with 3 functions in one device: pulse, position, frequency and speed display, timer and short time meter for fast and slow count pulses.

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



Powerful

- Fast count and frequency input – input frequency max. 60 kHz
- 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 . 01 X . 3 X 0
a b

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

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

Delivery specification
 – Digital display
 – Mounting clip
 – Gasket
 – Instruction manual, multilingual

– 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"]

Multifunction devices, electronic

LED multifunction display Multifunction – 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 as well as further accessories can be found in the accessories section or in the accessories area of our website at: 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 > 26 ... 30 V DC -20°C ... +55°C (non-condensing)
Storage temperature	-25°C ... +70°C

Electrical characteristics	
Power supply	10 ... 30 V DC, with reverse polarity protection
Current consumption	max. 55 mA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

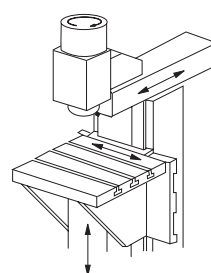
Mechanical characteristics	
Housing	front panel mount 48x24 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g

Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency¹⁾	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 x U _B [V DC] HIGH 0.6 x 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

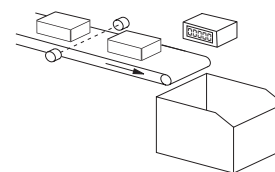
Outputs (optional)	
Optocoupler output	max. 30 V, 10 mA

Applications for multifunction display

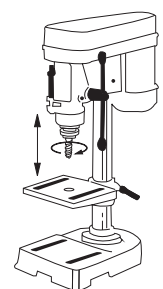
- Counting tasks such as quantity and piece counting, measuring and recording of speed and of operating and processing times
- Piece counting or tool-life measurement on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles 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



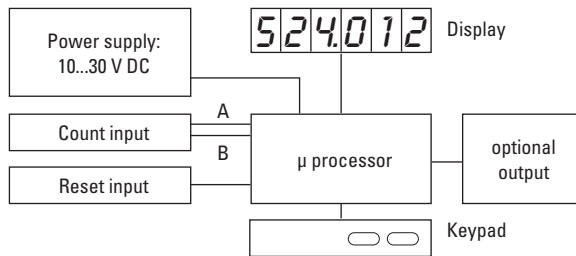
Drilling machine head, speed or drilling depth

1) Details see manual

Multifunction devices, electronic

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

Block diagram



Terminal assignment



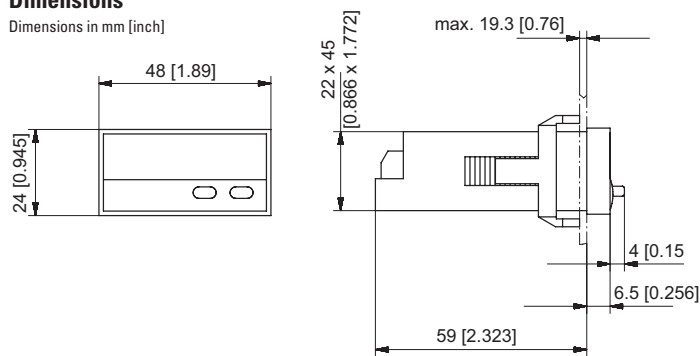
PIN	without optocoupler
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset / Set



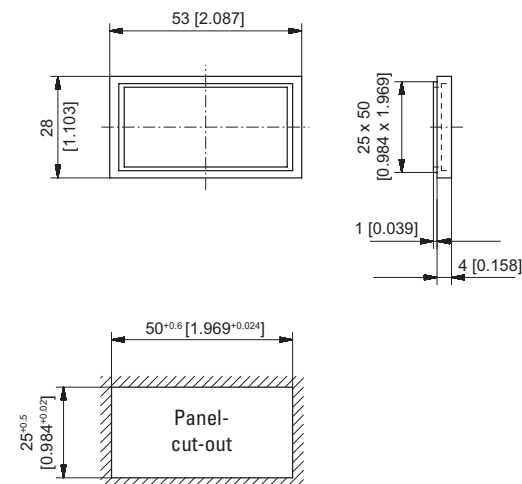
PIN	with optocoupler (NPN)
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset / Set
6	Emitter
7	Collector

Dimensions

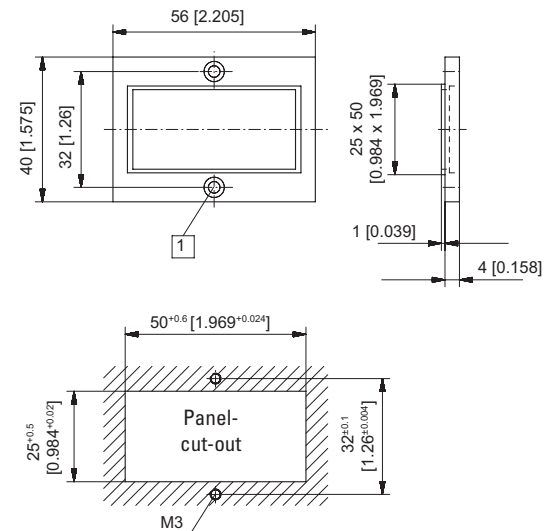
Dimensions in mm [inch]



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

Multifunction devices, electronic

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



The Codix 544 is a voltage-powered multifunction counter with 3 functions in one device:

pulse, position, frequency and speed display, timer and short time meter for fast and slow count pulses.

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



AC/DC 10 ... 260 V	000000 DIN 96 x 48	-20° + 65° Temperature range	IP65 High protection level	Plug-in screw terminal	Prog Menu-driven programming	max. 60 kHz Pulse counter/ Totaliser	POSITION Position display	1/sec 1/min Frequency meter/ tachometer	Timer	t Hz HRA Frequency meter HRA
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Powerful

- Fast count and frequency input – input frequency max. 60 kHz
- 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 power supply
- 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

Multifunction devices

Order code **6.544 . 01 X . XX 0**

- a** Output
1 = optocoupler ¹⁾
2 = no output ¹⁾
- b** Power supply
0 = 90 ... 260 V AC ¹⁾
3 = 10 ... 30 V DC

- c** Input switching level
0 = Standard (HTL) ¹⁾
A = 4 ... 30 V DC

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

- Replacement parts**
- 7 pin screw terminal RM 3.81 1 ... 7: N100387
 - 2 pin screw terminal RM 5.08 1 ... 2: N100133

1) Stock types

Multifunction devices, electronic

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

Accessories	Dimensions in mm [inch]	Order-No.
Mounting frame with cut-out 92 x 45 [3.62 x 1.77]	For snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey G300005

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

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 ... +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	
Power supply	10 ... 30 V DC galvanically isolated with integrated reverse polarity protection 90 ... 260 V AC
Current consumption	max. 50 mA, 6 VA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to Protection class 2 Application area Pollution level 2

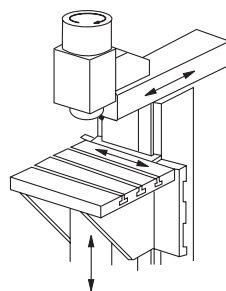
Mechanical characteristics	
Housing	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 150 g [5.29 oz]

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 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 power supply	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
AC-power supply	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

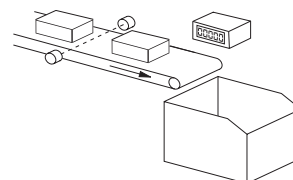
Outputs	
Sensor power supply (AC version)	24 V DC ±15 %/100 mA
Optocoupler output	max. 30 V, 10 mA

Applications for multifunction display

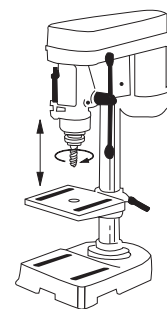
- Counting tasks such as quantity and piece counting, measuring and recording of speed and of operating and processing times
- Piece counting or tool-life measurement on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles 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



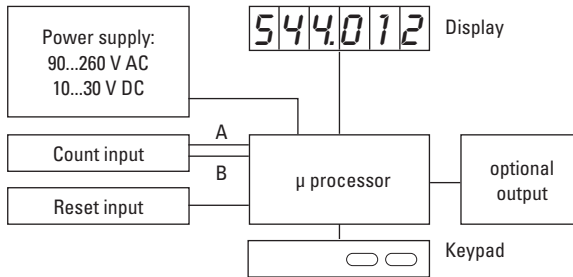
Drilling machine head, speed or drilling depth

1) Details see manual

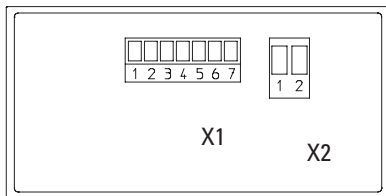
Multifunction devices, electronic

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

Block diagram



Terminal assignment



Connection X1

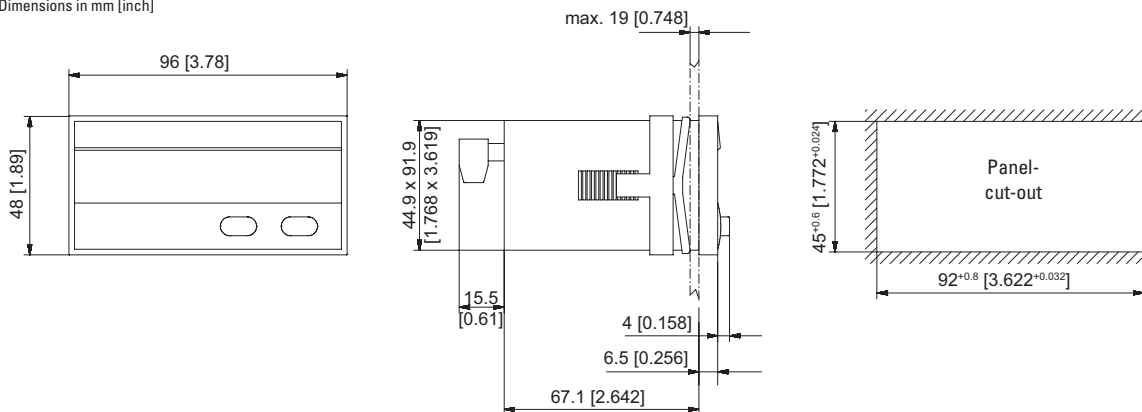
PIN	AC version	DC version
1	Optocoupler output	Emitter
2	Optocoupler output	Collector
3	Reset / Set	
4	INP B	
5	INP A	
6	GND out	n.c.
7	+24 V out	n.c.

Connection X2

PIN	AC version	DC version
1	90 ... 260 V AC	0VDC (GND)
2	90 ... 260 V AC	10...30 V DC

Dimensions

Dimensions in mm [inch]



Multifunction devices

Multifunction devices

LED multifunction preset counters **Pulse, frequency, time (also reciprocal) – (AC+DC)** **571**



The multifunction preset counter 571 with its max. 100 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.

Versions are available with 2 alarm outputs, analogue output or with serial interface.

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



AC/DC 17...260V Power supply	Multifunction 1/Hz Multifunction	max. 100 kHz Clock frequency	2 2 Optocoupler outputs	mA, V Analogue output	14 bit Resolution analogue output	RS 232/485 RS232/485 interface	IP65 High protection level	POSITION Position display	DIN 96 x 48 DIN front bezel	6 LED LED display
Menu-driven programming	Plug-in screw terminal									

Characteristics

- Fast count input, works with our Limes measuring system (100 kHz)
- Version with 2 optocoupler outputs for alarms
- Version with scalable analogue output, resolution 14 bit, 0 ... 10 V, +10 ... -10 V, 0 ... 20 mA or 4 ... 20 mA
- Version with serial interface RS232/485 for importing and exporting data
- Sensor power supply 24 V DC, 150 mA
- 96 x 48 mm DIN housing, IP65

Benefits

- AC and DC power supply in one unit
- Measuring function can be programmed for RPM, speed (from elapsed time), machine cycle time, throughput and baking time (time interval), as well as numerous count and stop-watch functions
- Version with 2 optocoupler outputs; preset 2 can also be programmed as a tracking preset
- Scaleable display, programmed via 2 keys
- Large 15 mm high LED display, 6-digit, with adjustable brightness

Order specifications

Display with:	Order-No.	Delivery specifications
2 optocoupler outputs ¹⁾	0.571.011.E00	- Display 571
Analogue output ¹⁾	0.571.012.E90	- Gasket
Serial interface RS232/485	0.571.012.E05	- Mounting kit
		- Plug-in screw terminals
		- Manual German/English

Accessories	Dimensions in mm [inch]	Order-No.
Mounting frame with cut-out 92 x 45 [3.62 x 1.77]	For snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey G300005
OS2 software for parameter setting	can be downloaded at www.kuebler.com	

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Multifunction devices, electronic

LED multifunction preset counters **Pulse, frequency, time (also reciprocal) – (AC+DC)** **571**

General technical data	
Display	LED display, 15 mm high 6 decades
Operating temperature	0°C ... +45°C [+32°F ... +113°F] (non-condensing)
Storage temperature	-25°C ... +70°C [-13°F ... +158°F]
Altitude	up to 2000 m [6562']

Electrical characteristics	
Power supply	16 ... 35 V DC (rated voltage 24 V DC) 115/230 V AC, ± 12.5 %
Current consumption DC	18 V 120 mA 24 V 95 mA 30 V 80 mA
Power consumption AC	7.5 VA
Auxiliary power supply output for sensors (for AC and DC supply)	24 V DC ± 15%, 120 mA
EMC	Immunity to interference EN 55011 class B Emitted interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2

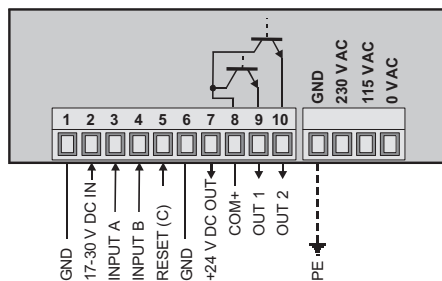
Mechanical characteristics	
Protection	IP65 (front side)
Weight	approx. 200 g [7.06 oz]

Inputs	
3 inputs	PNP, NPN and Namur A, B = pulse, C = reset
Max. input frequency	A, B 25 kHz (100 kHz for count) C 1 kHz
Input level HTL	LOW 0 ... 3.5 V HIGH 9 ... 35 V
Accuracy frequency	±1 ppm ±1 digit

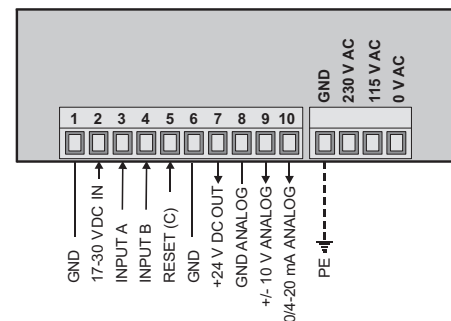
Outputs	
Analogue output (0.571.012.E90)	0 ... +10 V, +10 ... -10 V and 0 ... 20 mA, 4 ... 20mA
Resolution	14 bit + Sign
Accuracy	0.1 %
Optocoupler output (0.571.011.E00)	5 ... 35 V DC/150 mA
Interface (0.571.012.E05)	RS232 and RS485 n. ISO 1745 drivecom protocol

Terminal assignment

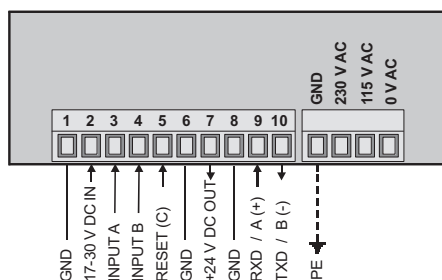
Display with 2 optocoupler outputs (0.571.011.E00)



Display with analogue output (0.571.012.E90)

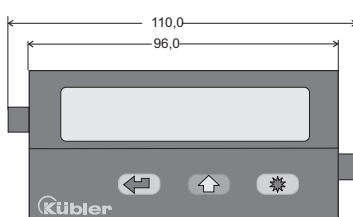


Display with serial interface (0.571.012.E05)

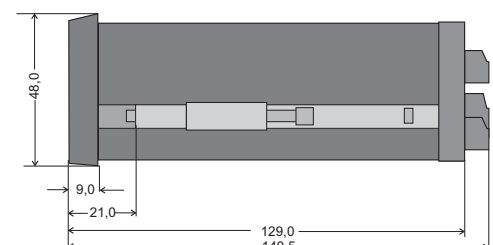
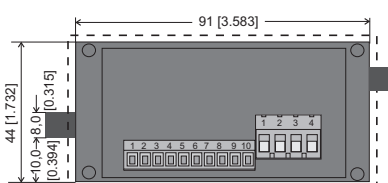


Dimensions

Dimensions in mm [inch]



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

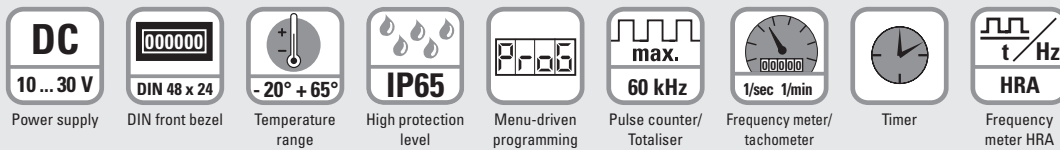




The Codix 52U is a voltage-powered dual function counter with 4 functions in one device:

Counter with 2 totalising ranges, totaliser and timer, totaliser and frequency meter, timer with 2 time ranges.

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



Powerful

- Fast count and frequency input – input frequency max. 60 kHz
- 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 . 01 2 . 3 X 0
a

a Input switching level
 0 = Standard (HTL) ¹⁾
 A = 4 ... 30 V DC

Delivery specification
 – Digital counter
 – Mounting clip
 – Gasket
 – Instruction manual, multilingual

- 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"]

Multifunction devices, electronic

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

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 as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Technical data

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

Electrical characteristics	
Power supply	10 ... 30 VDC, with integrated reverse polarity protection
Current consumption	max. 40 mA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

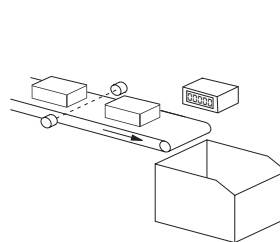
Mechanical characteristics	
Housing	front panel mount 48x24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g [1.76 oz]

Inputs	
Polarity of inputs	programmable, NPN or PNP
Input resistance	approx. 5 kΩ
Counting frequency¹⁾	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 x U _B [V DC] HIGH 0.6 x 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

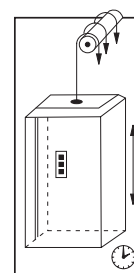
Multifunction devices

Applications for dual functions

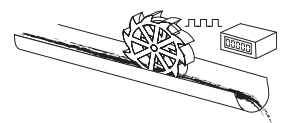
- Pulse and frequency (speed)
e.g. production data acquisition: total piece count and speed on OEM equipment, flow rate measuring systems – total flow and current flow
- 2 pulse counters
Measurement of batch and total piece count or of daily production count and total count values
- Pulse and time (maintenance 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

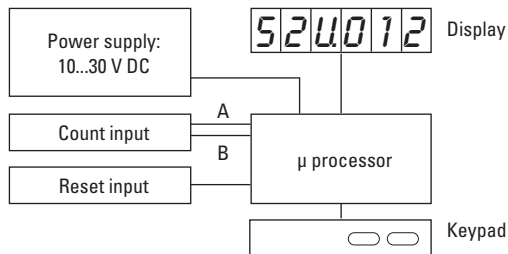
Multifunction devices, electronic

LED dual function displays

Universal with dual functions, 4 combinations (DC)

Codix 52U

Block diagram



Terminal assignment



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 totalising ranges:

INP A: Dynamic count input counter 1 and counter 2

INP B: Inactive

Totaliser and timer::

INP A: Dynamic count input for totaliser

INP B: Start/Stop or gate input for timer, totaliser and frequency meter

Totaliser and frequency meter:

INP A: Dynamic count input/frequency input

INP B: Inactive

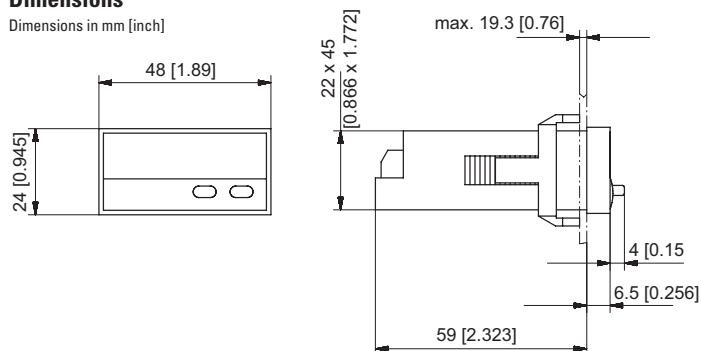
Timer with 2 time ranges:

INP A: Start input (depends on input type)

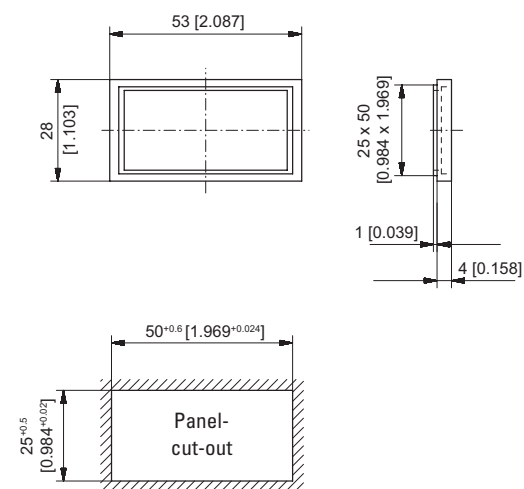
INP B: Start/Stop or gate input for timer (depends on input type)

Dimensions

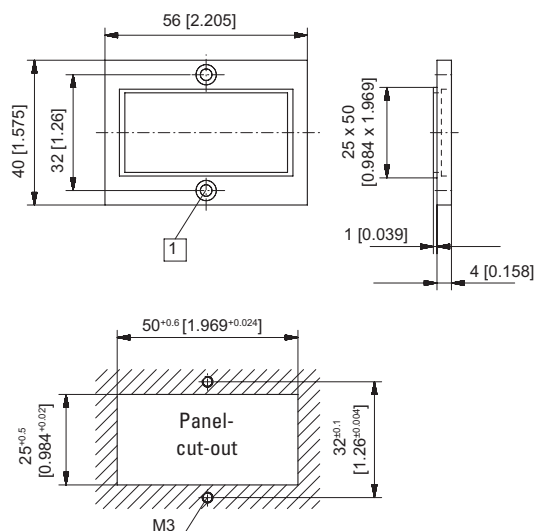
Dimensions in mm [inch]



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

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 ... 30V	 DIN 48 x 24	 -20° +65°	 IP65	 Menu-driven programming	 max. 30 kHz	 1/sec 1/min	 POSITION	 HRA
Power supply	DIN front bezel	Temperature range	High protection level		Pulse counter/ Totaliser	Frequency meter/ tachometer	Position display	Frequency meter HRA

Powerful

- Fast count and frequency input – input frequency max. 30 kHz
- 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

Multifunction devices

Order code **6.52P . 01 2 . 3 X 0**

a Input switching level
0 = Standard (HTL) ¹⁾
A = 4 ... 30 V DC

Delivery specification
– Digital counter
– Mounting clip
– Gasket
– Instruction manual, multilingual

– 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"]

1) Stock types

Multifunction devices, electronic

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

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 as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Technical data

General technical data

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

Electrical characteristics

Power supply	10 ... 30 V DC, with integrated reverse polarity protection
Current consumption	max. 40 mA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

Mechanical characteristics

Housing	front panel mount 48x24 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]

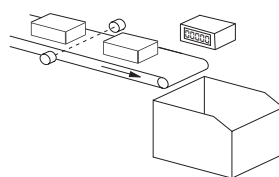
Inputs

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 x U _B [V DC] HIGH 0.6 x 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

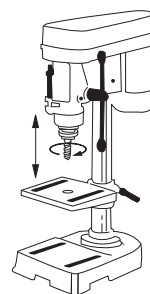
Applications for frequency and position display / totaliser

Position and rotary speed applications, e.g.

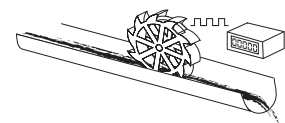
- OEM equipment or retrofitting to drilling machines
- OEM equipment on flow measuring plant, e.g. total flow and current flow
- Total piece count and pieces per minute, where the pulse counting occurs in the add/subtract mode, in order to deduct reject parts
- Production data acquisition: total piece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



Piece count on conveyor
and production speed



Rotary speed and drilling
depth



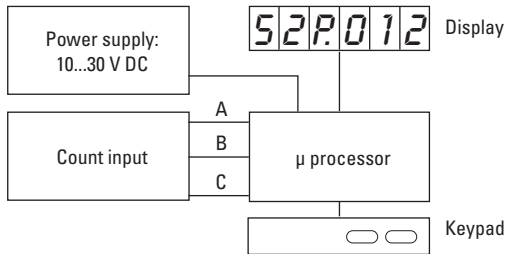
Flow rate and total
volume

1) Details see manual

Multifunction devices, electronic

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

Block diagram



Terminal assignment



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:

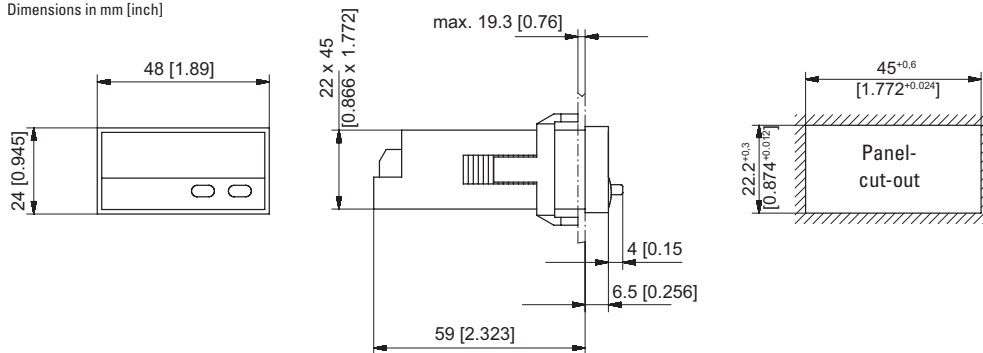
Two channel pulse input with 6 different count modes

INP C:

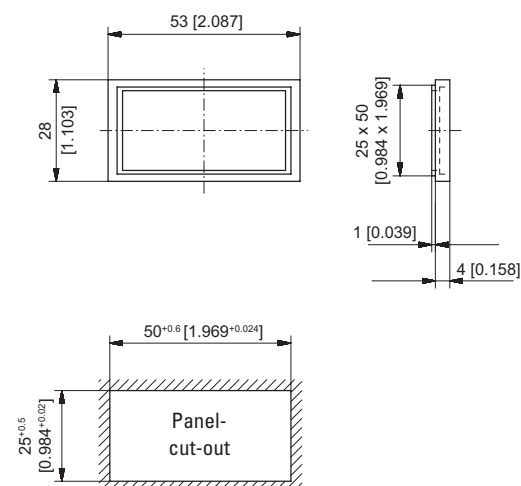
Frequency input, single channel

Dimensions

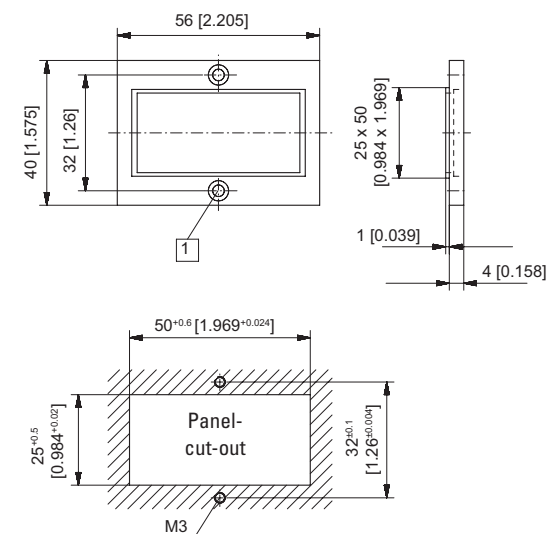
Dimensions in mm [inch]



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

LED dual function displays

Universal with dual functions, 4 combinations (AC+DC)

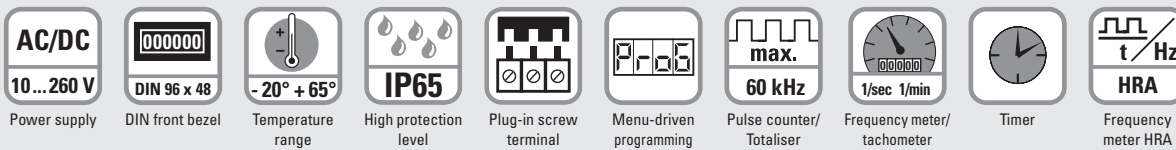
Codix 54U



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

Counter with 2 totalising ranges, totaliser and timer, totaliser and frequency meter, timer with 2 time ranges.

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



Powerful

- Fast count and frequency input – input frequency max. 60 kHz
- 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 power supply
- 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 . 01 2 . XX 0
a b

a Power supply
 0 = 90 ... 260 V AC ¹⁾
 3 = 10 ... 30 V DC

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

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

Replacement parts
 7 pin screw terminal RM 3.81 1 ... 7: N100387
 2 pin screw terminal RM 5.08 1 ... 2: N100133

Accessories

Mounting frame
 with cut-out 92 x 45 [3.62 x 1.77]

Dimensions in mm [inch]
 For snap-on mounting on 35 [1.38] top-hat DIN rail,
 for counters 96 x 48 [3.74 x 1.89]

grey

Order-No.

G300005

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

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 ... +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	
Power supply	10...30 V DC, with reverse polarity protection 90 ... 260 V AC
Current consumption	max. 50 mA, 6 VA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2

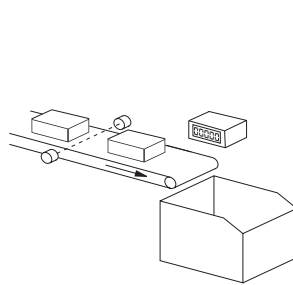
Mechanical characteristics	
Housing	front panel mount 96 x 48 mm [3.74 x 1.89"] acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 150 g [5.29 oz]

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 power supply	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
AC power supply	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

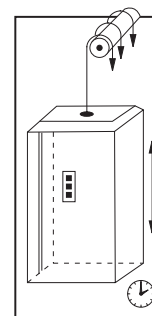
Outputs	
Sensor power supply (AC version)	24 V DC ± 15 %/100 mA

Applications for dual functions

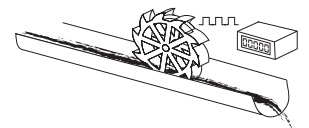
- Pulse and frequency (speed)
e.g. production data acquisition: total piece count and speed on OEM equipment, flow rate measuring systems – total flow and current flow
- 2 pulse counters
Measurement of batch and total piece count or of daily production count and total count values
- Pulse and time (maintenance 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

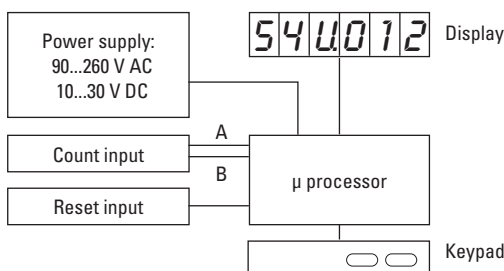


Trip counter and hours-run



Flow rate and total volume

Block diagram



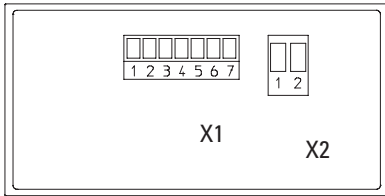
1) Details see manual

Multifunction devices

Multifunction devices, electronic

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

Terminal assignment



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	90 ... 260 V AC	0V DC (GND)
2	90 ... 260 V AC	10 ... 30 V DC

Function of the inputs INP A, INP B

Counter with 2 totalising ranges:

INP A: Dynamic count input counter 1 and counter 2

INP B: Inactive

Totaliser and timer:

INP A: Dynamic count input for totaliser

INP B: Start/Stop or gate input for timer, totaliser and frequency meter

Totaliser and frequency meter:

INP A: Dynamic count input/frequency input

INP B: Inactive

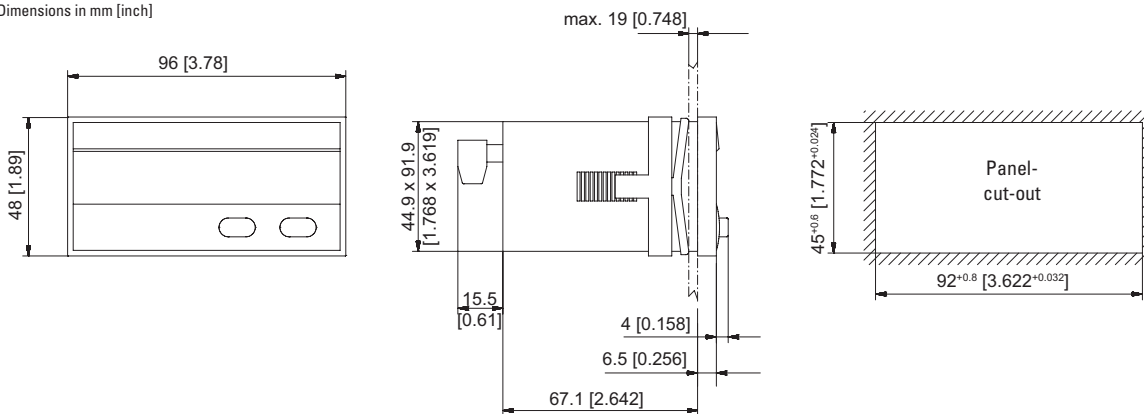
Timer with 2 time ranges:

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]



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.



AC/DC 10 ... 260 V	000000 DIN 96 x 48	-20° + 65° Temperature range	IP65 High protection level	Plug-in screw terminal	Prog Menu-driven programming	max. 30 kHz Pulse counter/ Totaliser	1/sec 1/min Frequency meter/ tachometer	POSITION Position display	t Hz Frequency meter HRA
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Powerful

- Fast count and frequency input – input frequency max. 30 kHz
- 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 power supply
- 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

Multifunction devices

Order code **6.54P . 01 2 . XX 0**

a Power supply 0 = 90 ... 260 V AC ¹⁾ 3 = 10 ... 30 V DC	b Input switching level 0 = Standard (HTL) ¹⁾ A = 4 ... 30 V DC	Delivery specification – Digital display – Mounting clip – Gasket – 2 plug-in screw terminals – Instruction manual, multilingual	Replacement parts 7 pin screw terminal RM 3.81 1 ... 7: N100387 2 pin screw terminal RM 5.08 1 ... 2: N100133
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Accessories	Dimensions in mm [inch]	Order-No.
Mounting frame with cut-out 92 x 45 [3.62 x 1.77]	For snap-on mounting on 35 [1.38] top-hat DIN rail, for counters 96 x 48 [3.74 x 1.89]	grey G300005

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Multifunction devices, electronic

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 ... +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	
Power supply	10 ... 30 V DC, with reverse polarity protection 90 ... 260 V AC
Current consumption	max. 50 mA, 6 VA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
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]

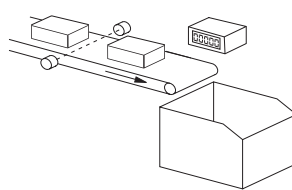
Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency ¹⁾	max. 30 kHz, can be damped to 30 Hz
Display range	tachometer 1/min or 1/sec
Minimum pulse duration of the reset input	5 ms
Input switching level standard version (HTL)	
DC power supply	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
AC power supply	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 power supply (AC version)	24 V DC ±15 %/100 mA

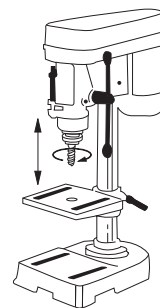
Applications for frequency and position display / totaliser

Position and rotary speed applications, e.g.

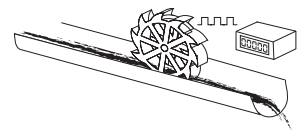
- OEM equipment or retrofitting to drilling machines
- OEM equipment on flow measuring plant, e.g. total flow and current flow
- Total piece count and pieces per minute, where the pulse counting occurs in the add/subtract mode, in order to deduct reject parts
- Production data acquisition: total piece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



Piece count on conveyor and production speed

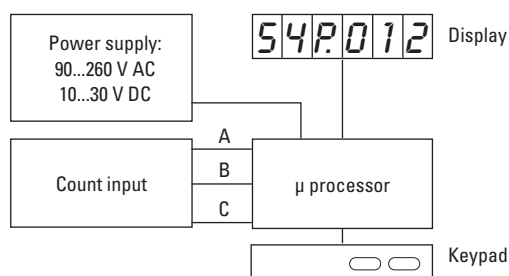


Rotary speed and drilling depth



Flow rate and total volume

Block diagram

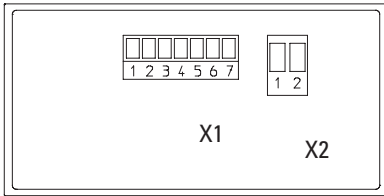


1) Details see manual

Multifunction devices, electronic

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

Terminal assignment



Connection X1

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

Connection X2

PIN	AC version	DC version
1	90 ... 260 V AC	0VDC (GND)
2	90 ... 260 V AC	10 ... 30 V DC

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

INP A and INP B:

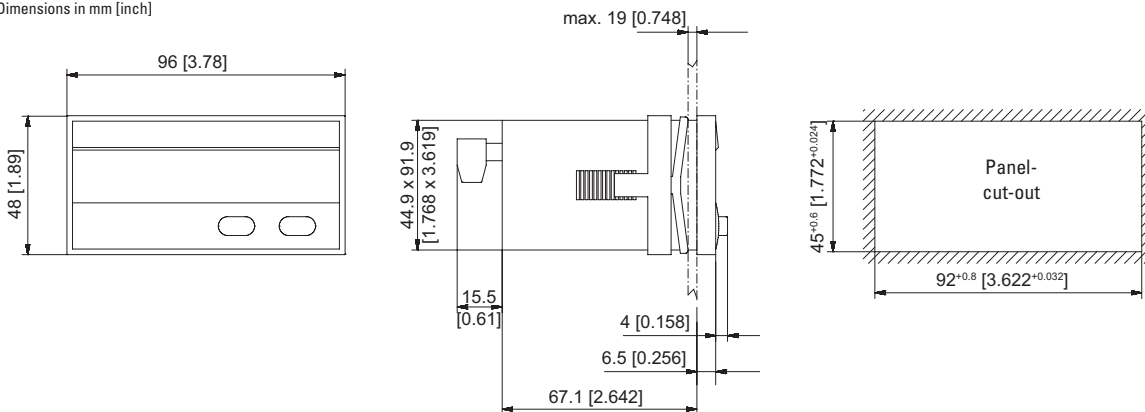
Two channel pulse input with 6 different count modes

INP C:

Frequency input, single channel

Dimensions

Dimensions in mm [inch]



Multifunction devices