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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.



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	.	01	X (a)	.	X (b)	X (c)	0

a *Output*
1 = optocoupler
2 = no output [1)]

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

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

1) Stock types

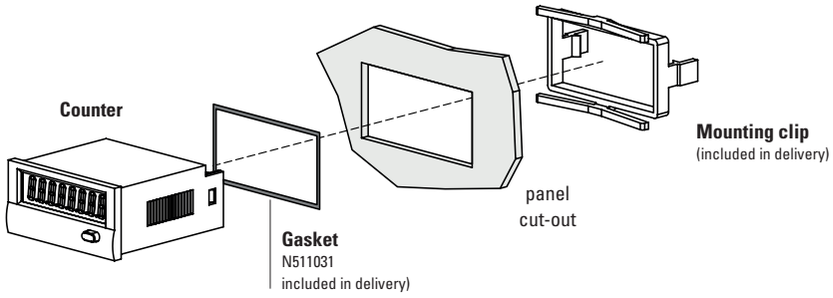
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Accessories / Mounting examples



		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 1 ... 2, pitch 5.08	7 pin 2 pin	N100387 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 protection class application area	EN 61010 part 1 2 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 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	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

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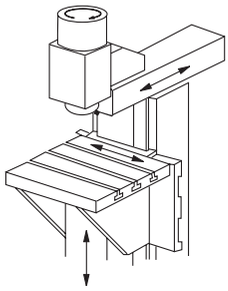
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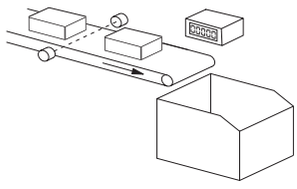
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Applications for multifunction display

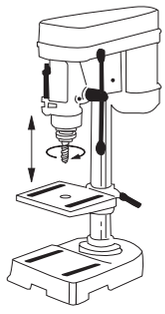
- Counting tasks such as quantity and piece counting, measuring and recording of speed and of operating and processing times
- Piece counting or tool-life measurement on die cutters, presses, extruders, woodworking machines, drilling machines,pick-and-place machines, guillotines, special-purpose vehicles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

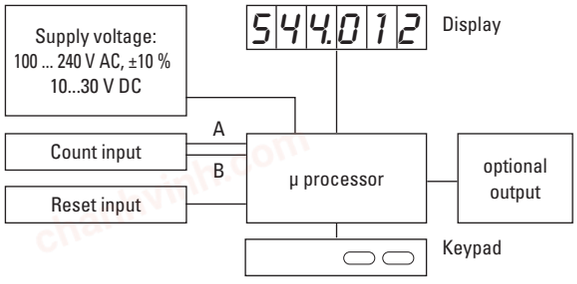
Pulse counter:
Various counting modes such as count direction, difference, addition, phase discriminator

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

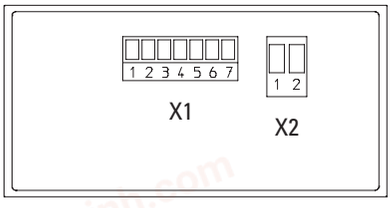
Frequency and speed display:
Pulses per minute or per second scaleable, with HRA measurement

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

Block diagram



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

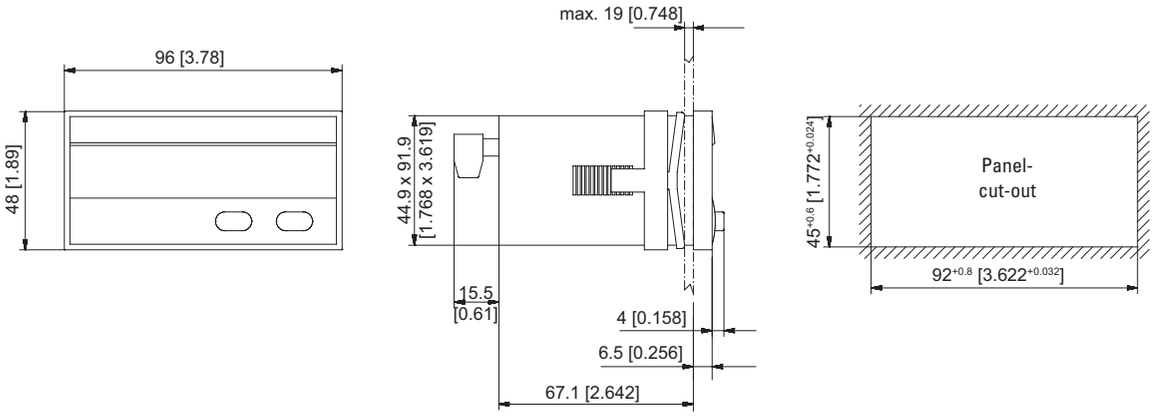
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Dimensions

Dimensions in mm [inch]



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