

# 52U

## Multifunction Counter, Timer, Totalizer and Process Meter



**The 52UK.2 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.**

The 52UK.2 is a versatile unit for a range of applications, with a fast count and frequency input - input frequency max. 60 kHz (can be damped to 30 Hz for mechanical contacts) - robust IP65 housing and LED display. It provides a very accurate precise frequency measurement principle (HRA-High Rate Accuracy System) with frequencies up to 38 Hz calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement and 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.

### Key Features

- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up.
- 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.
- Separate factors for frequency and pulse counting.
- Inputs: as an alternative to the HTL inputs, devices are available with a 4-30 VDC input level, for use as parallel displays to PLCs.
- 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.
- 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.

## Specification

<b>Display</b>	6 digits, red 7 segment LED display; 8mm [0.32"] high	<b>Vibration resistance</b>	10 - 55 Hz / 1 mm [0.04"] / 30 min acc. to EN 60068-2-6
<b>Data backup</b>	EEPROM	<b>Shock resistance</b>	100 G: 2 ms 10 G: 6 ms acc. to EN 60068-2-27
<b>Operating temp</b> (non condensing)	10-26 VDC: -20°C - +65°C [-4°F - +149°F] >26-30 VDC: -20°C - +55°C [-4°F - +131°F]	<b>Polarity of inputs</b>	programmable, NPN or PN
<b>Storage temp</b>	-25°C - +70°C [-13°F - +158°F]	<b>Input resistance</b>	approx. 5 kΩ
<b>Power supply</b>	10 - 30 VDC, with integrated reverse polarity protection	<b>Counting frequency</b>	max. 60 kHz, can be damped to 30 Hz
<b>Current consumption</b>	max. 40 mA	<b>Display range</b>	timer: 0.001 s - 999999 h frequency meter: 1/min or 1/sec
<b>EMC standards</b>	EN 55011 class B, EN 61000-6-2, EN 61000-6-3 EN 61326-1	<b>Minimum pulse duration of reset input</b>	5 ms
<b>UL approval</b>	file E128604	<b>Input switching level (HTL)</b>	LOW 0 - 0.2 x UB [VDC] HIGH 0.6 x UB - 30 VDC
<b>Housing</b>	front panel mount 48 x 24 mm [1.89 x 0.94"] acc. to DIN 43700; RAL 7021, dark grey	<b>Input switching level at 4 - 30 VDC</b>	LOW 0 - 2 VDC HIGH 4 - 30 VDC
<b>Protection</b>	IP65 (front side)	<b>Accuracy</b>	< 0.1 % frequency meter, tachometer
<b>Weight</b>	approx. 50 g [1.76 oz]		

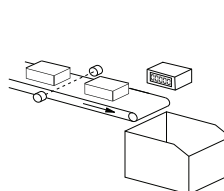
## Applications for Dual Functions

**Pulse and frequency (speed)** e.g. production data  
acquisition: total piece count and speed on equipment

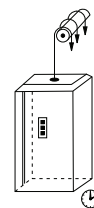
**2 pulse counters** measuring batch and total piece count or  
of daily production count and total count values

**Pulse and time (maintenance counter)** used in the lift  
industry as trip counters and hoursrun meters and on  
production machines for piece and time counting, flow and  
time measurement, materials handling time and quantities

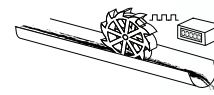
**2 timers** measuring of total time and orderspecific times,  
maintenance intervals and total time, time of day and total  
time



Piece count on conveyor  
and production speed

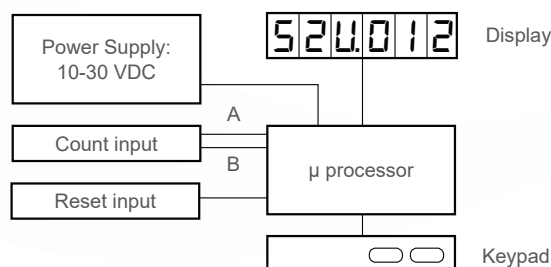


Trip counter and  
hours-run



Flow rate and  
total volume

## Block Diagram



## Terminal Assignment

1	2	3	4	5

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

Function of the inputs INP A, INP B

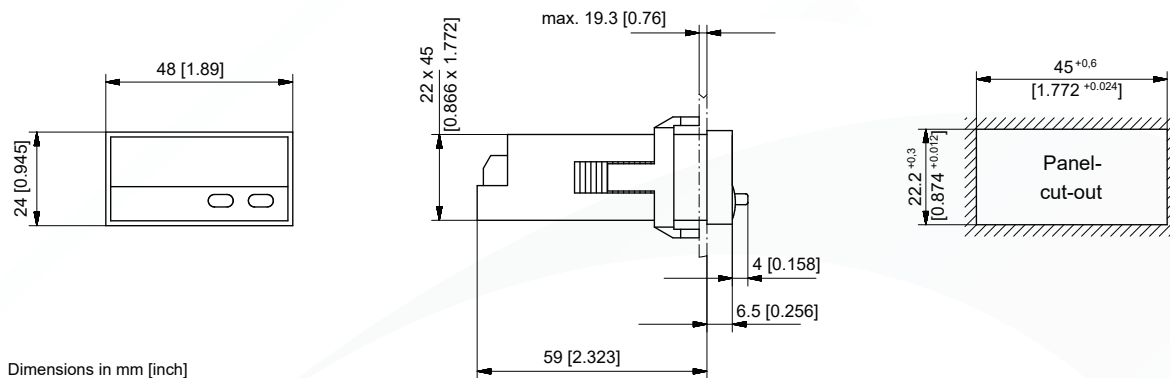
**Counter with 2 totalizing ranges:**  
INP A: Dynamic count input counter 1 and  
counter 2  
INP B: Inactive

**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

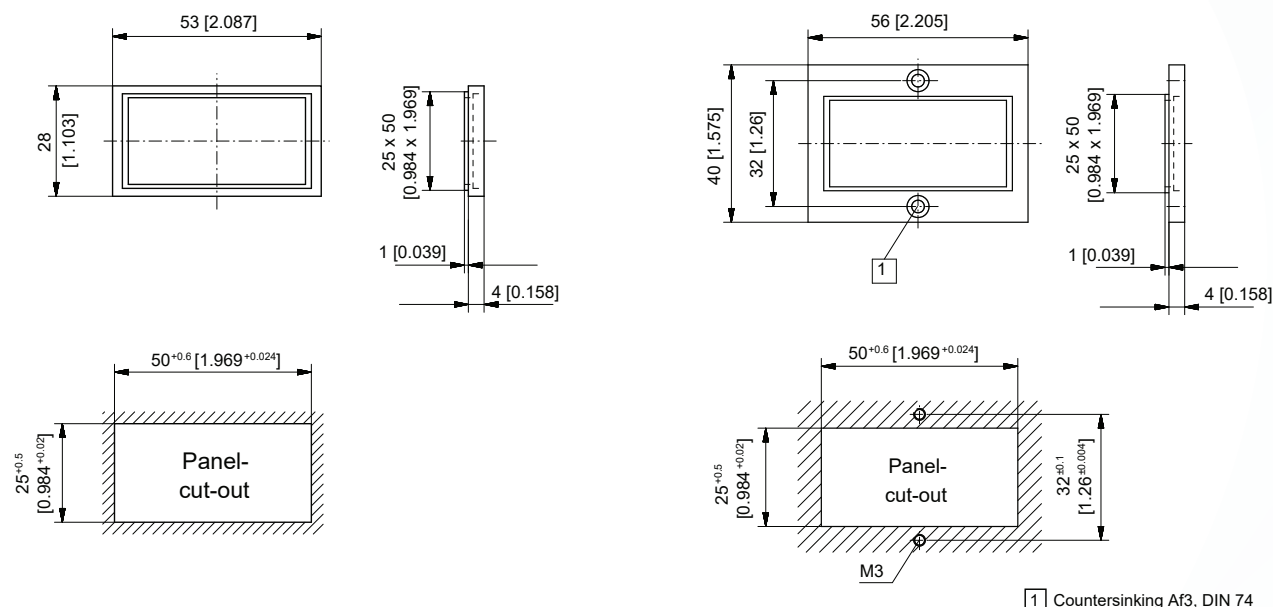
**Timer with 2 time ranges:**  
INP A: Start input (depends on input type)  
INP B: Start/Stop or gate input for timer

## Dimensions



**Front bezel for clip mounting (included in delivery)**

**Front bezel for screw mounting (included in delivery)**



## Part Number

**52U** Voltage-powered Dual Function Counter with 4 combinations

