

Operating instructions

Electronic display counter

521K, 522, 523 and 524

KEP

Kessler-Ellis Products

1.1 Safety instructions and warnings

Only use this display



- in a way according to its intended purpose
- if its technical condition is perfect
- adhering to the operating instructions and the general safety instructions.

1.2 General safety instructions

1. Before carrying out any installation or maintenance work, make sure that the power supply of the digital display is switched off.
2. Only use this digital display in a way according to its intended purpose:
If its technical condition is perfect.
Adhering to the operating instructions and the general safety instructions.
3. Adhere to country or user specific regulations.
4. The digital display is not intended for use in areas with risks of explosion and in the branches excluded by the standard EN 61010 Part 1.
5. The digital display shall only operated if it has been correctly mounted in a panel, in accordance with the chapter "Technical features".

1.3 Use according to the intended purpose

The digital display may be used only as a panel-mounted device. Applications of this product may be found in industrial processes and controls, in manufacturing lines for the metal, wood, plastics, paper, glass, textile and other processing industries.

Over-voltages at the terminals of the digital display must be kept within the limits in Category II

If the digital display is used to monitor machines or processes in which, in case of a failure of the device or an error made by the operator, there might be risks of damaging the machine or causing accidents to the operators, it is your responsibility to take appropriate safety measures.

1.4 Description

521K

Please note: Read first chapter 2 of **524K** and go on on page 2.

522K

Please note: Read first chapter 2 of **524K** and go on on page 4.

523K

Please note: Read first chapter 2 of **524K** and go on on page 6.

524K

524K is a multipurpose device. Depending on the programmed basic function, the device operates like

- the pulse counter **521K** (see page 2) or
- the frequency meter **522K** (see page 4) or
- the time meter **523K** (see page 6)

2. Setting of the operating parameters

- a. Press both front side keys and switch on the supply voltage or, if the supply voltage is already on, press both keys simultaneously during 5 s.
- b. The display shows

- c. After releasing the keys, the display shows

- c1. Hold the left key pressed and press the right key to leave the programming operation.

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Kessler-Ellis Products Co. 10 Industrial Way East, Eatontown, NJ 07724
Toll Free: 800-631-2165 • Phone: 732-935-1320 • Fax: 732-935-9344

kep.com
<http://www.kep.com>

c2. Press the right key to switch to

455

- d. Hold the left key pressed and press the right key to switch to the first parameter.
- e. After releasing the keys, the display alternates between the menu title and the current menu item setting. After pressing any key, only the menu item setting is displayed.
- f. Pressing the right key, the menu item setting will be switched to the next value. If figures are to be input (e.g. when setting the scaling factor), select first the decade using the left key, and then set the value using the right key.
- g. Hold the left key pressed and press the right key to switch to the next menu item.
- h. The last menu title "EndPro" allows, when selecting "Yes", to exit the programming menu and to take over (store) the new values. If "no" is selected, the programming routine is repeated, the latest values set remaining active. They can now be checked again or modified.

3. Programming routine

The first menu item is the selection of the basic operating mode, which determines the functions of the device.

Mode

Count

Operating mode pulse counter. Continued in point 4. of **521K** on page 2

Arho

Operating mode frequency meter. Continued in point 4. of **522K** on page 4

Time

Operating mode time meter. Continued in point 4. of **523K** on page 6

Pulse counter/Position indicator 521K

(524K: Operating mode pulse counter)

1. Description

- 6-digit display counter with SET/RESET-function
- Red LED display, character height 8 mm
- Display range from -19 999 to 999 999
- Leading zeros suppression
- Programming via two setting keys on the front side
- During programming, the display guides the user with text prompts
- Counter operating modes:
 - Count input INP A + count direction input INP B (Cnt.Dir)
 - Differential count INP A – INP B (up.dn)
 - Totalizing INP A + INP B (up.up)
 - Count Up/Down INP A 90° INP B x 1 (quAd)
 - Count Up/Down INP A 90° INP B x 2 (quAd 2)
 - Count Up/Down INP A 90° INP B x 4 (quAd 4)
- Optional optocoupler output

2. Inputs

INP A

Dynamic count input.

INP B

Dynamic count input.

SET/RESET

Dynamic SET/RESET input. Linked in parallel to the red SET/RESET key. Resets the counter to the predefined setting value.

3. Optocoupler output (optional)

Active if count value ≤ 0 . Simple preset counter can be realized, when using subtract mode.

4. Programming routine

The programmable parameters of the device are described below, in the order in which they can be set. The device is fully programmed after one pass of the routine.

The first values stated correspond to the factory settings

4.1 Polarity of the inputs

inPol

npn npn: switching for 0 V

pnp pnp: switching for +U_B

4.2 Switching on the 30 Hz filter (INP A, INP B)

Filter

The filter provides input damping*

off 30 Hz filter off (f_{max})

on 30 Hz filter on

4.3 Input mode

input

cnt.dir Count input and count direction input
INP A: Count input
INP B: Count direction input

up.dn Differential input
INP A: count input adding
INP B: count input subtracting

up.up Totalizing
INP A: count input adding
INP B: count input adding

quad Quadrature input
INP A: count input 0°
INP B: count input 90°

quad 2 Quadrature input with pulse doubling
INP A: count input 0°
INP B: count input 90°
Each pulse edge of INP A will be counted

quad 4 Quadrature input with pulse quadrupling
INP A: count input 0°
INP B: count input 90°
Each pulse edge of INP A and INP B will be counted.

4.4 Multiplying factor

Factor

0.0000 It can be set from 00.0001 up to 99.9999.

99.9999 The decimal point is set to 4 decimal places.
„0“ is not accepted!

4.5 Dividing factor

diviso

0.0000 It can be set from 00.0001 up to 99.9999.

99.9999 The decimal point is set to 4 decimal places.
„0“ is not accepted!

4.6 Decimal point

dp

The decimal point defines the way of displaying the count values. It does not affect counting.

0 0 no decimal place
0.0 one decimal place
0.00 two decimal places
0.000 three decimal places

4.7 SET/RESET Mode

reset

rrnrl manual reset via the red SET/RESET key and electrical reset via the SET/RESET input

no res no reset (red SET/RESET key and SET/RESET input locked)

el res only electrical reset via the SET/RESET input

rrnr only manual reset via the red SET/RESET key

* where bounce occurs, e.g. with contacts

4.8 SET value

SETPt

000000

The device will be set to the set point by pressing the red SET/RESET key or activating the SET/RESET input.

999999

SET value -199999...
999999 (number of decimal places depends on the decimal point option)

For programming the decimal point see 4.6

4.9 End of programming

EndPro

no

The programming routine is repeated once more. The values set until now can be checked and modified.

YES

The programming routine will be left and all values set will be stored as new parameters. Afterwards the device is ready for operation.

Tachometer/Frequency meter 522K

(524K: Operating mode frequency meter)

1. Description

- 6 digit frequency meter
- Red LED display, character height 8 mm
- Display range from 0 to 999 999
- Leading zeros suppression.
- Programming via two setting keys on the front side
- During programming, the display guides the user with text prompts
- Value conversion and display in 1/s or 1/min
- Optional optocoupler output

2. Inputs

INP A

Dynamic count input.

3. Optocoupler output (optional)

Active at $f=0$. Can be used e.g. to activate a „No operation“ lamp.

4. Programming routine

The programmable parameters of the device are described below, in the order in which they can be set. The device is fully programmed after one pass of the routine.

The first values stated correspond to the factory settings

4.1 Polarity of the inputs

inpOL

nPN

nPN: switching for 0 V

pNP

pNP: switching for +U_B

4.2 Switching on the 30 Hz filter

F i l t e r

The filter provides input damping*

o f f

30 Hz filter off (f_{max})

o n

30 Hz filter on

4.3 Multiplying factor

F a c t o r

0 1 0 0 0 0

It can be set from 00.0001 up to 99.9999.

The decimal point is set to 4 decimal places. „0“ is not accepted!

9 9 9 9 9 9

4.4 Dividing factor

d i v i s o r

0 0 0 0 0 1

It can be set from 00.0001 up to 99.9999.

The decimal point is set to 4 decimal places. „0“ is not accepted!

9 9 9 9 9 9

4.5 Decimal point

d p

The decimal point defines the resolution in the selected measuring range 1/min or 1/sec

0

0 no decimal place

0.0 one decimal place

0.00 two decimal places

0.000 three decimal places

0 0 0 0

4.6 Display mode

d i s p l a y

5 E E - 1

Value conversion and display in 1/s

9 9 9 - 1

Value conversion and display in 1/min

4.7 Max. time to wait until „0“ is displayed

This parameter indicates, how long it takes, when measuring is active, until „0“ is displayed.

W a i t e

0 0 . 1

Max. time to wait 00.1 s (min. value)

9 9 . 9

Max. time to wait 99.9 s

4.8 End of programming

E n d P r o

n o

The programming routine is repeated once more. The values set until now can be checked and modified.

y e s

The programming routine will be left and all values set will be stored as new parameters. Afterwards the device is ready for operation.

* where bounce occurs, e.g. with contacts

