



FACTORY AUTOMATION

MANUAL

KCV-4S/6S-V, KCV-4S/6S-C1

PRESETTING COUNTERS



With regard to the supply of products, the current issue of the following document is applicable:
The General Terms of Delivery for Products and Services of the Electrical Industry, as published by
the Central Association of the 'Elektrotechnik und Elektroindustrie (ZVEI) e.V.',
including the supplementary clause "Extended reservation of title"

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For this reason, this printed matter is produced on paper bleached without the use of chlorine.

1	General Information	5
1.1	Explanation of used symbols	5
2	Safety	6
2.1	Intended use	6
2.2	General safety information	6
2.3	Functional safety / monitoring	6
3	Product Description	7
3.1	Scope of delivery	7
3.2	Device variants	7
3.3	Device description	7
4	Installation	8
4.1	Storage and transport	8
4.2	Unpacking	8
4.3	Installation	8
4.4	Electrical connection	10
4.4.1	Device connection	10
4.4.2	Terminal assignments on the terminal block	11
4.4.3	Connection diagrams	12
4.5	Disassembly, packing and disposal	13
5	Commissioning	15
5.1	Hardware settings	15
5.2	Function description	17
5.2.1	Counting rate	17
5.2.2	"Input" function	17
5.2.3	Counting direction	18
5.2.4	Count-value memory	18
5.2.5	"Output" function	18
5.2.6	Key lock	20
5.2.7	Operating mode	21
5.3	Special operating conditions	21
5.3.1	Outputs	21
5.3.2	Counter overflow	22
6	Operation	23
6.1	Operation and display elements	23
6.1.1	Display elements	23
6.1.2	Operating elements	24
6.2	Switching on and operating	24
6.2.1	Setting the preset value	24
6.2.2	Resetting the count value	24
7	Configuration	25
7.1	Working in the configuration mode	25
7.2	Overview and description of the adjustable parameters	26
7.2.1	Scaling value and scaling factor	26

7.2.2	Numerical display	27
7.2.3	Decimal point	27
7.2.4	Preactivation	27
7.3	Configuring the counter	28
8	Fault Diagnostics	31
8.1	Device errors	31
8.2	Reconfiguring	31
9	Technical Data	32
9.1	Dimensions	33

1 General Information

1.1 Explanation of used symbols



Warning

This symbol warns the user of possible danger. Failure to heed this warning can lead to personal injury or death and/or damage to equipment.



Attention

This symbol warns the user of a possible failure. Failure to heed this warning can lead to total failure of the equipment or any other connected equipment.



Note

This symbol gives the user important hints.

2 Safety

2.1 Intended use

The Pepperl+Fuchs devices KCV-4S-V, KCV-4S-C1, KCV-6S-V, KCV-6S-C1 are electronic presetting counters for use in MC plants/systems and automation engineering. The counters are designed to be installed in control panels in dry, weather-resistant rooms.

Use in the following areas is not permitted:

- Areas with explosive atmospheres
- Medical applications



Warning

The safety of the operating personnel and the system are not guaranteed when the device is not used in accordance with its intended use.

The devices KCV-4S-V, KCV-4S-C1, KCV-6S-V, KCV-6S-C1 must only be operated by trained personnel in accordance with this operating manual.

2.2 General safety information



Warning

Safety and correct functioning of the device cannot be guaranteed if operated in any way other than that described in this operating manual.

The connection of the equipment and any maintenance work to be carried out with voltage applied to the equipment must only be performed by appropriately qualified electro-technical personnel.

In the case that a failure cannot be repaired, the device must be taken out of operation and protected against inadvertently being put back into operation.

Repair work must only be carried out by the manufacturer. Additions or modifications to the equipment are not allowed and void the warranty.

The responsibility for the adherence to local safety standards lies with the operator.

2.3 Functional safety / monitoring

The presetting counters KCV-4S-V, KCV-4S-C1, KCV-6S-V, KCV-6S-C1 function on a microprocessor basis. They are internally monitored for proper function and component failure.

Device malfunctions and errors are, when possible, displayed in the device display.

More detailed information can be found in Chapter 'Fault Diagnostics' (see chapter 8).

3 Product Description

3.1 Scope of delivery

The following are included with the delivery of the device:

- 1 operating manual
- 1 counter KCV-...
- 1 control-panel fastening frame

3.2 Device variants

Code	Description	Type No.
KCV-4S-V	Presetting counter with 4-character LCD-display and supply voltage of 100 ... 240 V AC	51278
KCV-4S-C1	Presetting counter with 4-character LCD-display and supply voltage of 12 ... 24 V DC	51280
KCV-6S-V	Presetting counter with 6-character LCD-display and supply voltage of 100 ... 240 V AC	51281
KCV-6S-C1	Presetting counter with 6-character LCD-display and supply voltage of 12 ... 24 V DC	51282

3.3 Device description

The counters of types KCV-4S-V, KCV-4S-C1, KCV-6S-V, KCV-6S-C1 are devices for recording and counting electric impulses as they occur in almost all areas of automation and process engineering, e.g. output signals from proximity switches or rotation encoders.

The devices can be operated as incrementers (addition) and decrementers (subtraction). Two inputs are available for counting pulses. These can be configured as either separate inputs for adding and subtracting or together as a phase-difference input.

The count range is -999 ... 9999 (4-character display) or -99999 ... 999999 (6-character display). The current counter status and the set value, which can be set on the counter, are displayed in the 4- or 6-character device display. It is possible here to scale the displayed value using an adjustable factor between 0.001 and 9999 (99999 for 6-character display).

If the preset value (incrementer) or counter value "0" (decrementer) is reached, both device switching outputs, a DC-pnp-open-collector output and a relay-output, are activated. The outputs can also be configured with respect to the switching characteristics (latching contact/wiping contact, preactivation and switching time).

4 Installation

4.1 Storage and transport

The counter must be packed for storage and transport so that it is shock-resistant and protected against humidity. The original packaging offers optimal protection.

The necessary environmental conditions also must be satisfied (see Technical Data).

4.2 Unpacking

Check that the contents are not damaged. In case of damage, notify the postal service or the forwarding agent and inform the deliverer.

Check the contents of delivery with respect to your order and the delivery papers for:

- quantity delivered
- device type and version according to the name plate
- accessories
- handbook(s)

Keep the original packaging in case the device must be repacked and stored or reshipped.

For any further questions please contact Pepperl+Fuchs GmbH.

4.3 Installation

Plug the counter into a standard opening (48 x 48 mm²) in the control panel. Then slide the fastening frame from behind onto the device until the position where the device is securely held is reached.

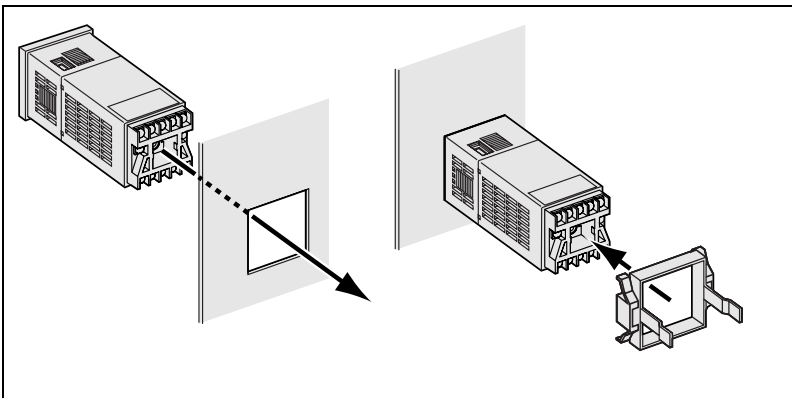


Fig. 4.1: Mounting

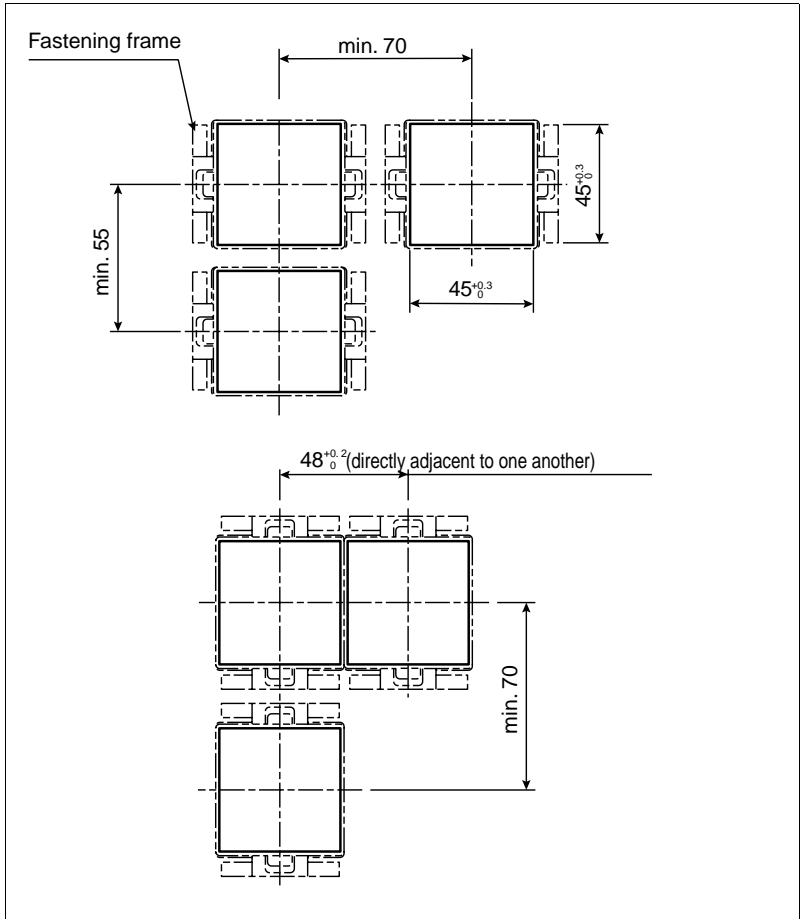


Fig. 4.2: Control panel fitting, required spaces

4.4 Electrical connection



Warning

Only qualified personnel are permitted to carry out work under voltage and make electrical connection to mains.

Ensure that the correct voltage is applied according to the value permitted for the device.

Before making electrical connections and carrying out service work, the device must be disconnected from all voltage sources.

4.4.1 Device connection

Connection of the counter can be simplified by removing the terminal block from the device. Remove the cover prior to wiring. Make certain that the cables are connected as illustrated.

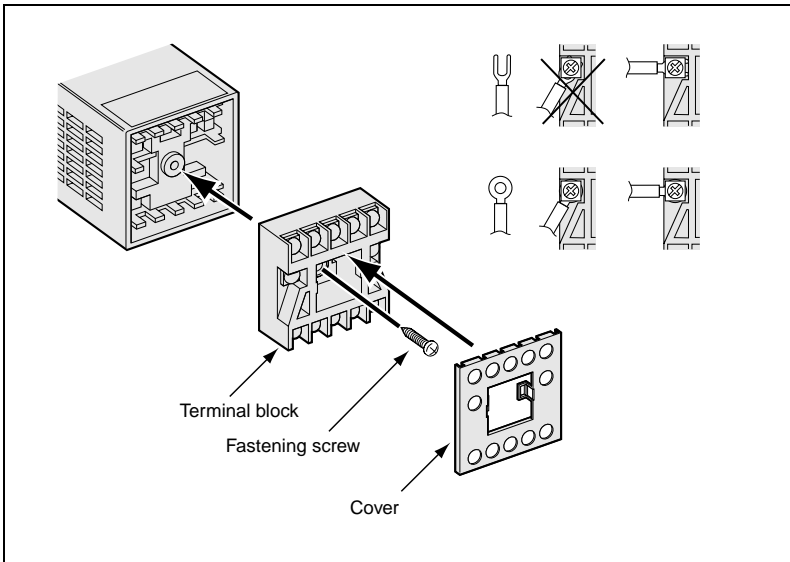


Fig. 4.3: Terminal block and cable connection

The position of the connection terminals are given in the following illustration:

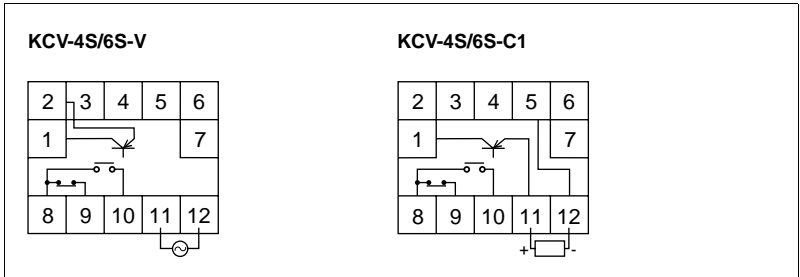


Fig. 4.4: Positions of the connection terminals

4.4.2 Terminal assignments on the terminal block

Terminal	KCV-4S/6S-V	KCV-4S/6S-C1
1	DC-open-collector output OUT (pnp)	
2	24 V DC, 60 mA (Signal-transmitter supply)	not wired
3	Counter input INA	
4	Counter input INB	
5	0V	
6	Hold input INH	
7	Reset R	
8	Relay-output central contact, COM	
9	Relay-output normally closed contact, N.C.	
10	Relay-output normally open contact, N.O.	
11	Power 100 ... 240 V AC	Power 12 ... 24 V DC
12		

4.4.3 Connection diagrams

Inputs

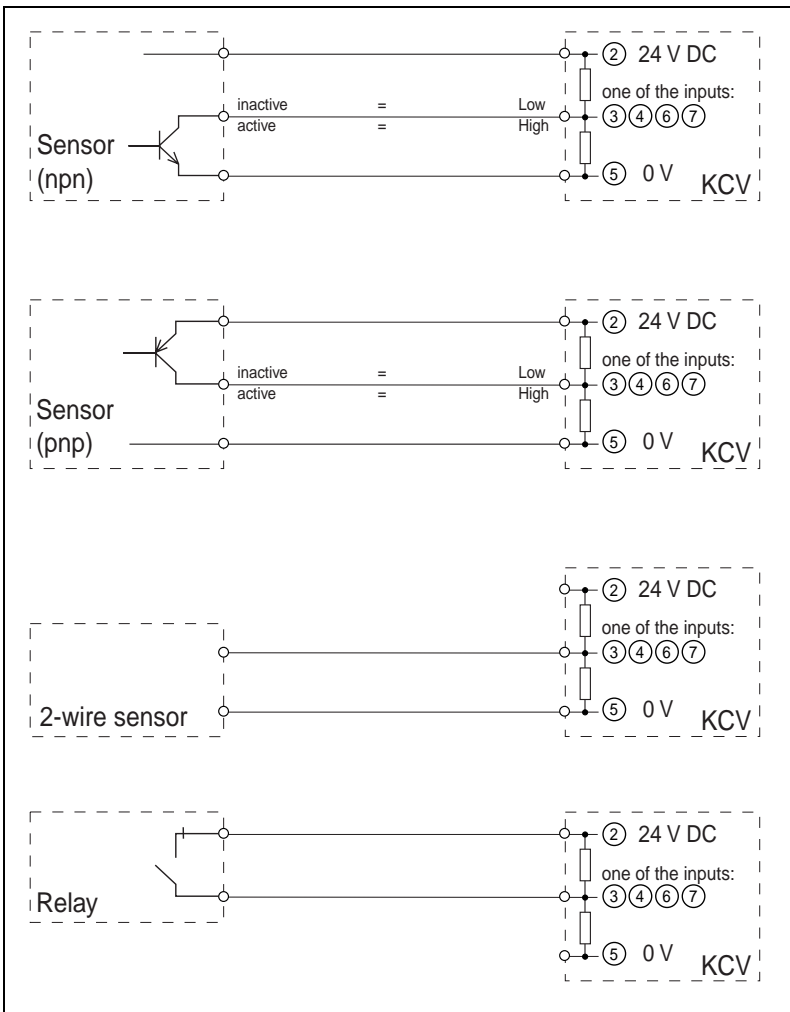


Fig. 4.5: "Inputs"



Note

For 2-channel, incremental rotation encoders, the recommended "Input" function, which can be set with DIP switch 2 (see chapter 5.1), is the use of both inputs → and Ø as phase-difference input for signal analysis.

Issue date 27.07.98

Outputs

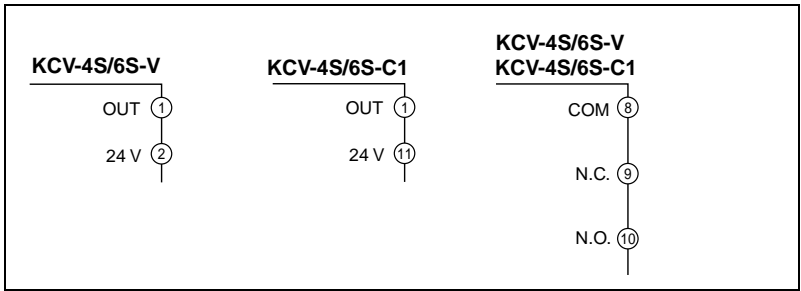


Fig. 4.6: "Outputs"

4.5 Disassembly, packing and disposal:

The following apply for all procedures described in this chapter:

- First de-energize the device.
- Remove the cover on the terminal block.
- Disconnect all connections.

Disassembly

If you would like to remove the device from the control panel, you must remove the fastening frame. To do this, press the two levers on the fastening frame approx. 2 - 3 mm outwards, then pull the fastening frame from the device. The device can now be removed from the front of the control panel.

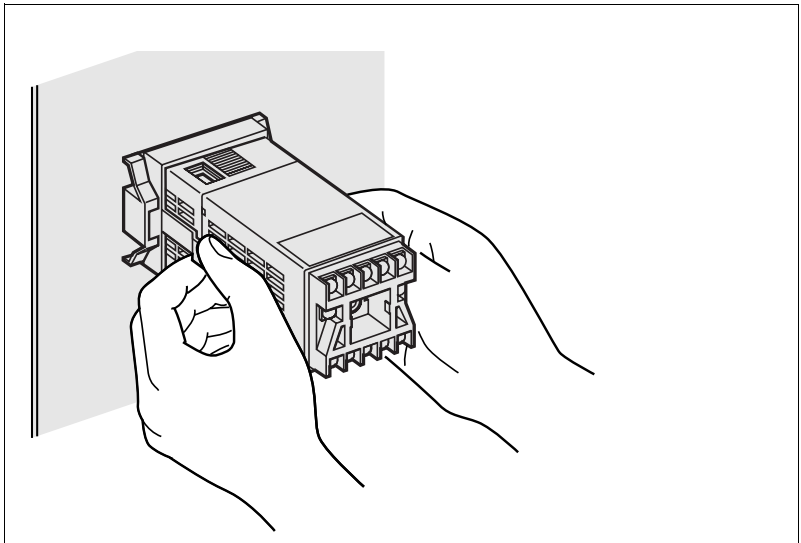


Fig. 4.7: Disassembly

Packing

The device must be protected against humidity and shock when packing for later use. The original packaging offers optimal protection.

Disposal



Note

Electronic waste can be hazardous. Pay attention to local regulations when disposing of the device.

The counters KCV-4S-V, KCV-4S-C1, KCV-6S-V, KCV-6S-C1 contain no internal batteries which would need to be removed prior to disposal.

5 Commissioning



Warning

Prior to commissioning, ensure that the system in which the counter is integrated cannot be placed in danger, e.g. through unmonitored, controlled processes.



Attention

Recheck all connections and hardware settings before proceeding with the commissioning.

Make certain that at the installation site the function of the counter cannot be influenced by elevated temperatures and electromagnetic fields.

Before commissioning, become familiar with the operation and configuration of the counter (Chapters 6 and 7 of this manual).

5.1 Hardware settings

Prior to commissioning, use the DIP switches to make the desired settings. Changes take effect after switching the device off, then back on. After changing the DIP-switch settings, you should always press the reset key (RST) to reset the count value.



Attention

Make changes to the DIP-switch settings only when the device is in a de-energized state.

Use a small, pointed object (e.g. safety pin or mechanical pencil) to make changes to the switch settings. Use great care when making changes, as the switches are very sensitive.

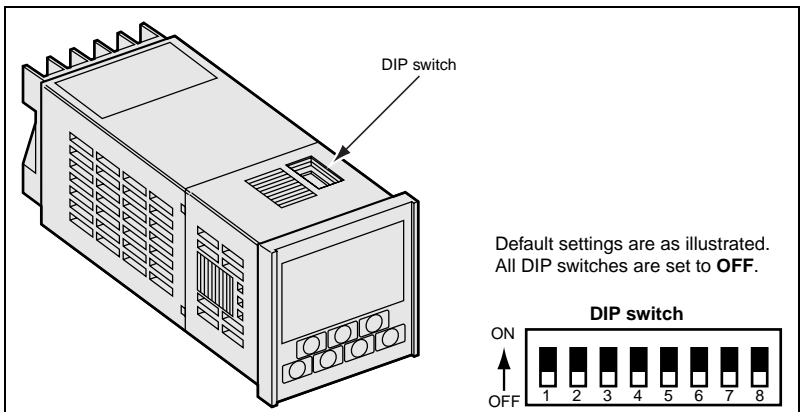


Fig. 5.1: DIP switches

DIP-switch settings

This table contains an overview of all hardware adjustment options. All settings listed here are described in detail in the next chapter (see figure 5.2).



In addition to the hardware settings described here, the configuration menu can be used to make additional settings, some of which supplement the parameters listed here (see chapter 7).

Note

DIP	Setting	ON OFF	Description
1	Counting rate (counting pulses per second)	ON	30 cps (counts per second)
		OFF*	10 kcps
2	"Input" function	ON	Separate inputs for addition and subtraction
		OFF*	Joint use as phase-difference input
3	Counting direction	ON	Decrementer
		OFF*	Incrementer
4	Count-value memory	ON	Count value is stored
		OFF*	Count value is reset
5	"Output" function	ON	Latching contact
		OFF*	Wiping contact
6	Key lock	ON	Keys locked
		OFF*	Keys not locked
7	No function	ON	-
		OFF	-
8	Operating mode	ON	Configuration mode
		OFF*	Operating mode

*) default setting (all DIP switches on OFF)

5.2 Function description

5.2.1 Counting rate

The counting rate must be set appropriately for the expected frequency or period. In addition to counting rates which can be set with DIP switch 1, two additional counting rates (200 cps, 1 kcps) can be set via the configuration menu (see chapter 7).

5.2.2 "Input" function

The counter can be operated in two different modes using the two available inputs:

- separate inputs for addition and subtraction,
- joint use as phase-difference input.

The modes are selected using DIP switch 2 (see chapter 5.1).

Separate inputs for addition and subtraction (DIP 2 = ON)

In this mode, both inputs are independent of one another and do not influence each other. Each received signal is counted (ascending curve), independent of the state present at the other input.

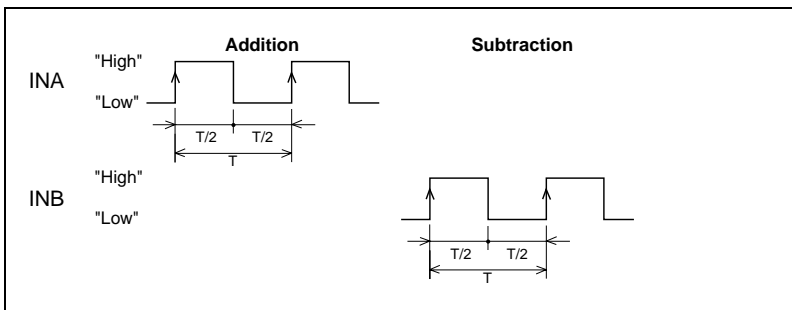


Fig. 5.2: Signal response "separate inputs"

Joint use as phase-difference input (DIP 2 = OFF)

In this mode, both inputs are analysed together and then evaluated as either an addition signal or a subtraction signal. States are interpreted as count events only when a high signal is present at input INA or INB, and the other input is on low.

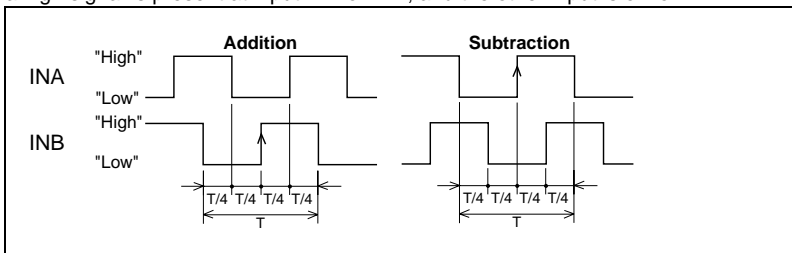


Fig. 5.3: Signal response "phase difference"

5.2.3 Counting direction

Independent of the counting direction set via DIP switch 3 (incrementer or decrementer), signals at inputs INA and INB are interpreted as just described. This means that, for example, the count value can decrease even while in the "incrementer" counting direction.

Decrementer (DIP 3 = ON)

In the "decrementer" mode, the count runs from a preset value down to "0". Once "0" is reached, the outputs activate the switching characteristics defined by you (see chapter 5.2.5).

Incrementer (DIP 3 = OFF)

In the "incrementer" mode, the count runs up to a preset value. Once this value is reached, the outputs activate the switching characteristics defined by you (see chapter 5.2.5).

5.2.4 Count-value memory

Count value is stored (DIP 4 = ON)

The current count value is stored when the operating voltage is switched off and on. To manually reset the count value in this mode, press the RST key (reset).

The count value is reset (DIP 4 = OFF)

The count value is automatically reset when the operating voltage is switched off and on. When the counting direction is set to "decrementer", the count value is then reset to the specified preset value; for the case of the "incrementer" counting direction, the count value is set to "0".

5.2.5 "Output" function

In addition to the two output functions that can be set with DIP switch 5 ("latching contact" and "wiping contact"), an additional output function ("coincidence" output) can be set via the configuration menu (see chapter 7). Moreover, in the configuration mode you can also define a switching time for the "wiping contact" function.

Latching contact (DIP 5 = ON)

In "latching contact" output function, the DC output remains activated while in the "incrementer" mode after the preactivation value has been reached until the reset key is pressed or the counter is reset via the hold input (INH). The relay output is activated between the time at which the preset value is reached and the time at which the reset occurs.

In the "decrementer" mode, the DC output remains activated after the preactivation value has been reached until the reset key is pressed or the counter is reset via the hold input. The relay output is only activated between the time at which the value "0" is reached and the time at which the reset occurs.

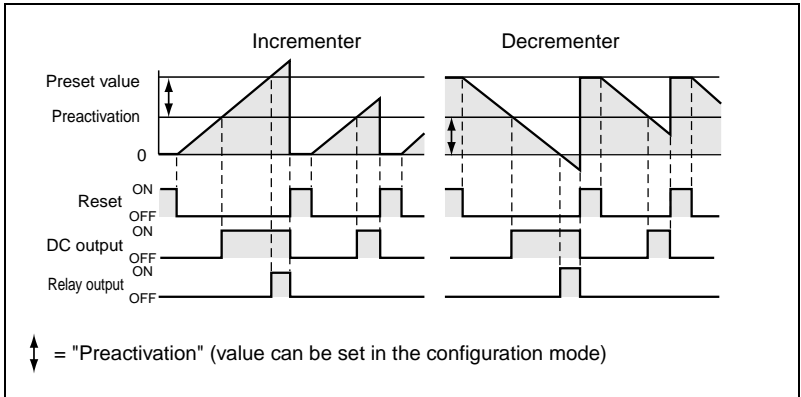


Fig. 5.4: Signal response "latching contact"

Wiping contact (DIP 5 = OFF)

In the "wiping contact" output function, the DC output remains activated while in the "incrementer" mode after the preactivation value has been reached until the count value is reset and the switching time has expired. The count value is reset automatically. As shown in the illustration, the DC output remains activated even after a reset. The relay output is activated for the set switching time after the preset value has been reached - even when a reset is triggered during the switching time.

In the "decrementer" mode, the DC output remains activated after the preactivation value has been reached until the count value has been reset and the switching time has expired. The count value is reset automatically. As shown in the illustration, the DC output is deactivated by a reset. The relay output is activated for the set switching time after the value "0" has been reached - even when a reset is triggered during the switching time.

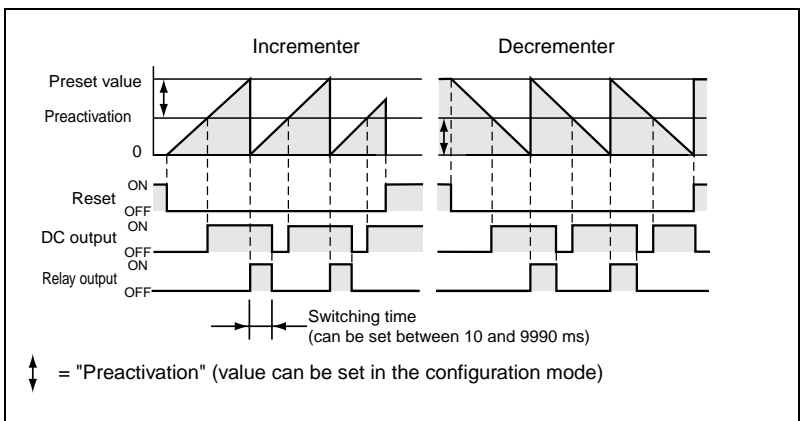


Fig. 5.5: Signal response "wiping contact"

Issue date 27.07.98

Coincidence output

Unlike the "wiping contact" and "latching contact" functions, the setting for the "coincidence output" is made in the configuration menu. In addition to the preactivation value, a postactivation value is used for the DC output connection. The values for preactivation and postactivation cannot be set separately: preactivation = postactivation.

In the "incrementer" mode after the preactivation value has been reached until the postactivation value is reached or the reset key is pressed or the counter is reset via the hold input (INH). The relay output is activated only for the duration preset value = count value.

In the "decrementer" mode, the DC output remains activated after the preactivation value has been reached until the value for the postactivation is reached or the reset key is pressed or the counter is reset via the hold input (INH). The relay output is activated only for the duration count value = "0"

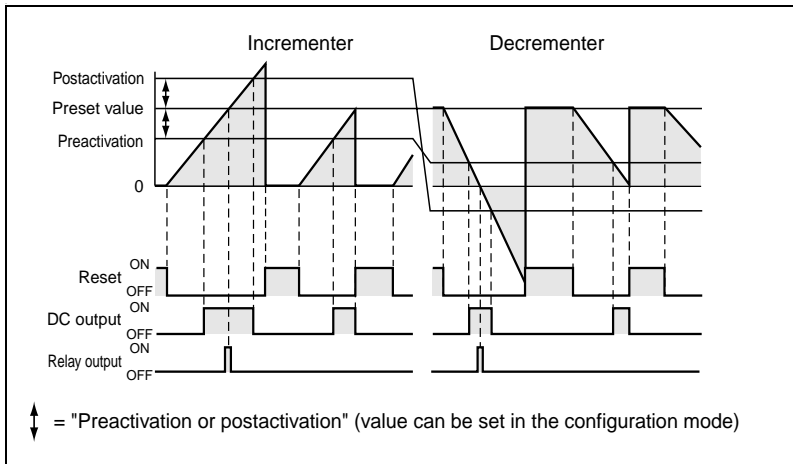


Fig. 5.6: Signal response "coincidence"

5.2.6 Key lock

Keys locked (DIP 6 = ON)

When this setting is selected, all keys (default) are locked. It is possible via the configuration menu to enable individual keys even if DIP switch 6 is set to ON. It would thus be possible to lock, for example, all keys except RST and 2.

When a locked key is pressed, the corresponding LED flashes.

Keys not locked (DIP 6 = OFF)

Regardless of what settings have been made in the configuration mode, all keys are available for input when this setting has been made.

5.2.7 Operating mode

When you switch between configuration mode and operating mode using the DIP switch, you must note the following:

- When DIP switch 8 is set to ON, the device starts in the configuration mode when switched on.
- When DIP switch 8 is set to OFF, the device starts in the operating mode when switched on.

Configuration mode (DIP 8 = ON)

In addition to the hardware settings, the counter can also be configured via the display (see chapter 7).

Operating mode (DIP 8 = OFF)

In this mode, the device is ready for operation.

5.3 Special operating conditions

5.3.1 Outputs

Only the DC output reacts to and is activated by the preactivation value. The relay output is only activated when the preset value or, as the case may be, "0" is reached. When the device is switched on, the outputs are, under normal circumstances, deactivated. .



Attention

Depending on the DIP switch and configuration settings, the outputs can be active immediately after the device is switched on.

The following states are possible:

- Depending on the set (stored) preactivation value, count value and preset value, it is possible that the DC output is activated immediately after the counter is switched on (e.g. count value = 0, preset value = 10 and preactivation = 10).
- When, for some reason, the counter is disconnected from power, the outputs were activated at this time and the counter was being operated in "latching contact" and "count memory on" modes, the outputs will be activated the next time the counter is switched on.
- When the device is switched on and the count value and preset value are both "0", the relay output remains deactivated; the DC output, on the other hand, is activated. This behavior is independent of whether the device is operated in incrementer or decrementer mode.
- When the count value is "0" and the preset value is set to "0" in incrementer count mode, both outputs are activated.
- The same applies when the count value comes out of the negative range and lands on "0", provided the preset value is set to "0".

5.3.2 Counter overflow

When the counter overflows in either the positive or negative direction, i.e. has a value which is either ≥ 999999 or ≤ -999999 , the overflow will be indicated in the display.

positive counter overflow	8.888888	the last decimal position flashes
negative counter overflow	-8.888888	in addition to the flashing decimal character, the "minus" symbol also appears in the display

The counter continues to count internally to the values -2147483.648 and 2147483.647, respectively. After either of these values is reached, the counter automatically resets.

The counter can also be reset manually by pressing the reset key.

6 Operation

6.1 Operation and display elements

Depending on the counter type, the operation and display field is designed for either 4- or 6-character input.

- 4 digits: KCV-4S-V and KCV-4S-C1
- 6 digits: KCV-6S-V and KCV-6S-C1

Information is displayed via a 7-segment display and a series of control LEDs. In the illustration, the operation and display elements are shown and described in detail using a 6-character counter as an example.

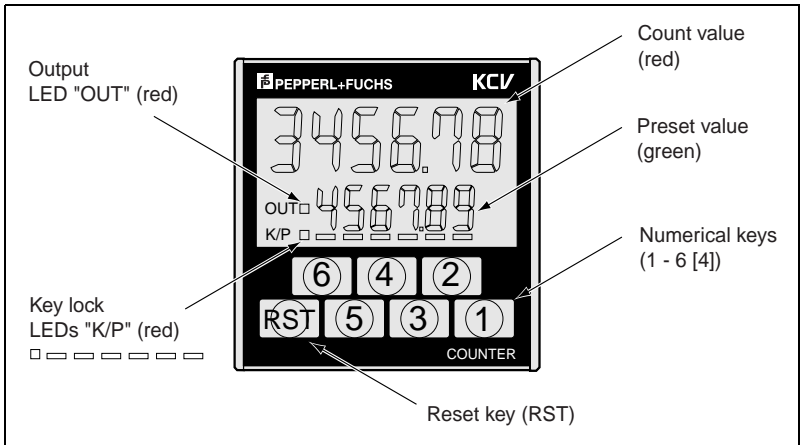


Fig. 6.1: Position of the operation and display elements (KCV-6S...)

6.1.1 Display elements

Output LED "OUT" (red)

OFF: None of the outputs is connected.

FLASHES: The value for preactivation/postactivation has been reached.
The DC output is activated.

ON: The preset value has been reached; both the DC output and the relay output are activated.

Key lock LEDs "K/P" (red)

- In the "operating mode", the corresponding LED flashes when a locked key is pressed (only when DIP switch 6 is set to ON). The square LED to the left is assigned to the reset key, the flat LEDs are assigned to the respective numerical keys.
- In the "configuration mode", the corresponding LEDs for the keys which are locked in the operating mode are illuminated (for the key lock parameters only).

Count value (red)

- In the "operating mode", the current count value is displayed.
- In the "configuration mode", the current value or option for the selected parameter is displayed.

Preset value (green)

- In the "operating mode", the current preset value is displayed.
- In the "configuration mode", the current selected parameter is displayed.

6.1.2 Operating elements

Reset key (RST)

- In the "operating mode", the count value is reset with this key.
- In the "configuration mode", you cycle through the available parameters with this key.

Numerical keys (1 - 6 [4])

- In the "operating mode", the preset value is set with these keys. The entered preset value is taken over 1 sec. after the last keystroke.
- In the "configuration mode", these keys are used to select the respective values/options for the currently selected parameter. Depending on the parameter, one, several or all numerical keys may be used.

6.2 Switching on and operating



Attention

Make certain that all hardware settings have been made at the DIP switches and that the connections are appropriately wired.

Switch on the device by applying the operating voltage. When DIP switch 8 is set to ON, the device starts in the configuration mode. For more information, see Chapter 7. When you are in the operating mode (DIP 8 set to OFF), you can set the desired preset value and, if necessary, reset the count value.

6.2.1 Setting the preset value

After switching on, the counter is in the input mode for the preset value. You can use the numerical keys to directly enter the desired preset value.

Proceed as follows:

To set the preset value, press the numerical keys 1 - 4 (6). Each key can be used to display the corresponding digit in the display. Each time a key is pressed, the respective digit increases by one (1-2-3-4-5-6-7-8-9-0-1...).

6.2.2 Resetting the count value

To reset the count value, press the reset key. When the counting direction is set to "decrementer", the count value is reset to the specified preset value; for the case of the "incrementer" counting direction, the count value is set to "0".

7 Configuration

As already mentioned, in addition to the hardware adjustment options, the counter can be configured for your individual requirements using the configuration mode.



Configuration settings made via the control panel remain stored in non-volatile memory in the device even after the operating voltage has been disconnected for longer periods of time.

Note

7.1 Working in the configuration mode

To access the configuration mode, DIP switch 8 must be set to ON when the device is switched on.

Use the reset and numerical keys to make changes to individual parameters.

- **Reset key (RST):**
Use this key to switch to the next parameter. As soon as you call up the next parameter using the reset key, the previously made settings are stored automatically.
- **Numerical keys:**
Use these keys to select the desired values/options for a parameter.



When you have concluded the configuration, de-energize the counter and re-set DIP 8 switch to OFF. When switched back on, the counter is again in the operating mode.

Note

7.2 Overview and description of the adjustable parameters

Parameter	Display	Values
Counting rate		200 cps, 1 kcps or as set at DIP 1 (explanations see chapter 5.2.1)
"Output" function		Coincidental output or as set at DIP 5 (explanations see chapter 5.2.5)
Switching time		10 - 9990 ms (in 10 ms increments), has an effect only in "wiping contact" mode.
Scaling value		1 - 9999 (4 digit display) 1 - 99999 (6-digit display) (explanations see chapter 7.2.1)
Scaling factor		Definition of a factor for the scaling value between 1, 10, 100 and 1000 by placing a decimal point (explanations see chapter 7.2.1)
Numerical display		Selectable between 1 - 4 (4-digit display) or 1 - 6 (6-digit display) (explanations see chapter 7.2.2)
Decimal point		Between 0 and 0.000(00) freely selectable (explanations see chapter 7.2.1)
Preactivation		0.001 - 9999 (4-digit display) 0.00001 - 999999 (6-digit display) (explanations see chapter 7.2.4)
Key lock, reset key (RST)		Locks the reset key for the operating mode (DIP 6 must be set to ON)
Key lock, digits		Locks the numerical keys for the operating mode (DIP 6 must be set to ON)

7.2.1 Scaling value and scaling factor

The scaling value and scaling factor parameters are interrelated. First enter a scaling value (e.g. 127), and then under scaling factor specify the factor (e.g. 1/100) by placing a decimal point at the appropriate position (1.27).



Note

Note, that when a scaling value is used together with a set factor (i.e. decimal places), the decimal places are not shown in the display in the operating mode.

The displayed value is not rounded off; the decimal places are cut off!

Issue date 27.07.98

The decimal places are also cut off when the decimal point is shifted using the decimal point parameter (d^D). The decimal point set there has no effect of the calculated result. It is, rather, a mere point on the display. If the decimal point is set to 0.000, the display appears as shown in column "Display 2".

Example:

Signal	Calculated result	Display 1 ($d^D = 0$)	Display 2 ($d^D = 0.000$)
1	1.27	1	0.001
2	2.54	2	0.002
3	3.81	3	0.003
4	5.08	5	0.005

7.2.2 Numerical display

Your entry for this parameter has an effect on the other following parameters:

- Decimal point
- Preactivation value,
- Key lock option for the numerical keys ($PPrO$).

When you wish to work with only the first two digits, for example, you can lock only the first two numerical keys, select 0.0 as the decimal point and enter a two-digit value.

For this reason, whenever you change the number of digits, the decimal is always automatically moved to a possible value, the preactivation value is always set to "0" and the presetting counter (which becomes visible only after you have returned to the operating mode) is set to "5".

7.2.3 Decimal point

The position of the decimal point can be selected freely. It has absolutely no effect on the scaling values or scaling factor and is not taken into account in the calculation. The decimal point is nothing more than a freely selectable point on the display.

The decimal point set here is also used when setting the preactivation value (displayed).

7.2.4 Preactivation

The entered value is a relative value, i.e., with a preset value of "100" and a preactivation value of "5", the DC output is activated when the count value reaches 95. Here, values can be set between 0.00001 and 999999. This is, however, dependent on the set decimal point (see chapter 7.2.3).

7.3 Configuring the counter

In the following table, all parameters which can be set via the control panel as well as their respective values/options are listed again in tabular form.

Moreover, you will also find information regarding the keys which can be used to switch between the individual values/options.



Each parameter's default value is indicated in the table by an asterisk ().*

Note




The values/options of the displayed parameter can be changed by pushing the indicated key.

All keys which are not listed have no function for the given parameter.

Parameter		Values / options		
Display	Meaning	Display	Meaning	Key
.888 CPS	Counting rate	8881000	1 kcps	1
		888200	200 cps	2
		888d.P1*	DIP 1 setting	3
Next parameter				RST
.888 -oP	"Output" function	8888E9	Coincidence output	1
		888d.P5*	DIP 5 setting	2
Next parameter				RST
.888outt	Switching time	888.100*	Decimal position 2 (10 ms)	2
			Decimal position 3 (100 ms)	3
			Decimal position 4 (1 s)	4
Next parameter				RST
.8885CL1	Scaling value, the factor (decimal point) is determined with the next parameter	8881000*	Decimal position 1 (0 - 9)	1
			Decimal position 2 (0 - 9)	2
			Decimal position 3 (0 - 9)	3
			Decimal position 4 (0 - 9)	4
			Decimal position 5 (0 - 9)	5

Issue date 27.07.98

KCV-4S-V, KCV-4S-C1, KCV-6S-V, KCV-6S-C1 Configuration

Parameter		Values / options		
Display	Meaning	Display	Meaning	Key
Next parameter				RST
	Scaling factor, only the position of the decimal point is changed, i.e. the numerical display is equal to the scaling value	8881000	Factor 1	1
		8881000	Factor 1/10	2
		8881000	Factor 1/100	3
		8881000*	Factor 1/1000	4
Next parameter				RST
	Numerical display (dependent on display type)	8888881	Numerical display 1	1
		8888882	Numerical display 2	2
		8888883	Numerical display 3	3
		8888884*	Numerical display 4	4
		8888885	Numerical display 5	5
		8888886*	Numerical display 6	6
Next parameter				RST
	Decimal point	8888880*	Without decimal point	1
		888800	Decimal point position 1	2
		888000	Decimal point position 2	3
		880000	Decimal point position 3	4
		800000	Decimal point position 4	5
		000000	Decimal point position 5	6
Next parameter				RST

KCV-4S-V, KCV-4S-C1, KCV-6S-V, KCV-6S-C1 Configuration

Parameter		Values / options		
Display	Meaning	Display	Meaning	Key
	Preactivation, the set decimal point is taken over		Decimal position 1 (0 - 9)	1
			Decimal position 2 (0 - 9)	2
			Decimal position 3 (0 - 9)	3
			Decimal position 4 (0 - 9)	4
			Decimal position 5 (0 - 9)	5
			Decimal position 6 (0 - 9)	6
Next parameter				RST
	Key lock, reset key (RST) (LED on = locked)		RST key locked	1
			RST key not locked	2
Next parameter				RST
	Key lock, numerical keys (LED on = locked)		Numerical key 1 (ON/OFF)	1
			Numerical key 2 (ON/OFF)	2
			Numerical key 3 (ON/OFF)	3
			Numerical key 4 (ON/OFF)	4
			Numerical key 5 (ON/OFF)	5
			Numerical key 6 (ON/OFF)	6



Note

When you have finished the configuration, de-energize the counter and re-set DIP 8 switch to OFF. When switched back on, the counter is again in the operating mode.

In Chapter 8 you will find two tables in which you can document the current DIP switch and parameter settings. When a device must be replaced or the device must be reset to its default values due to an error, you can use these tables to unproblematically re-configure the device.

8 Fault Diagnostics

8.1 Device errors

Error	Display
Memory error	888E21

- Press the reset key to clear the error message from the display and reset the device.
- The count value is automatically set to "0" and the preset value to "5000".
- All modification made in the configuration mode are lost, as the device is reset to its default settings. Use the tables below to reconfigure the counter.

8.2 Reconfiguring

DIP	1	2	3	4	5	6	7	8
ON								
OFF								

Parameter	Values					
Counting rate	200		1000		dIP1	
"Output" function	E9			dIPS		
Switching time						
Scaling value						
Scaling factor						
Numerical display	1	2	3	4	5	6
Decimal point	1	2	3	4	5	6
Preactivation						
Key lock, reset key (RST)	ON			OFF		
Key lock, digits	1 ON OFF	2 ON OFF	3 ON OFF	4 ON OFF	5 ON OFF	6 ON OFF

9 Technical Data

Technical Data				
Code	KCV-4S-V	KCV-6S-V	KCV-4S-C1	KCV-6S-C1
Nominal ratings:				
Counter type	Addition and subtraction counter			
Display	4- or 6-character (...4S, ...6S)			
Preset value	0 - 9999 or 0 - 999999, respectively			
Counting rate	30, 200, 1000 and 10000 cps			
Flash EEPROM Storage	Can be written to 100,000 times; memory retention time, 10 years			
Environmental data:				
Operating temperature	-10 °C ... +50 °C			
Storage temperature	-20 °C ... +70 °C			
Max. rel. humidity	35 - 85%, non-condensing			
Shock resistance	98 m/s ² , 10G, for 11 ms in all three spatial axes			
Vibration resistance	Amplitude 0.35 mm, at 10 to 50 Hz in all three spatial axes			
Protection Class EN 60529	IP 65 (device front only)			
Mechanical data:				
Dimensions (W x H x D without fastening frame)	48 x 48 x 106	48 x 48 x 66		
Mounting	Fastening frame for control panel (48 x 48 mm ²)			
Weight	Approx. 150 g	Approx. 110 g		
Perm. wire cross section	0.25 - 1.65 mm ²			
Tightening torque, terminals	0.5 Nm			
Inputs:				
Counting rate	30, 200, 1000 and 10000 cps			
Input resistance	15 kΩ			
Input signal level	LOW = 0 - 6 V, HIGH = 16 - 30 V			
On/off delay	< 500 ms			
Response time	Hold input: < 100 μs Automatic reset: < 100 μs Manual reset: < 100 ms			
Pulse width	External reset: > 5 ms			
Outputs:				
Output types	1 x pnp-open-collector (24 VDC, 100 mA, max.35 V) 1 x relay, maximum contact rating 220 VAC, 2A			
Output functions	Wiping contact, latching contact, coincidence			
Switching time	10 - 9990 ms (adjustable in 10 ms-increments)			

Issue date: 05.03.99

KCV-4S-V, KCV-4S-C1, KCV-6S-V, KCV-6S-C1 Technical Data

Technical Data				
Code	KCV-4S-V	KCV-6S-V	KCV-4S-C1	KCV-6S-C1
Power supply:				
Supply voltage range	100 ... 240 V AC -15%/+10%		12 ... 24 V DC -20%/+10%	
Sensor supply	24 V DC, 60 mA		-	
Current consumption	Approx. 11 VA		4 W	

9.1 Dimensions

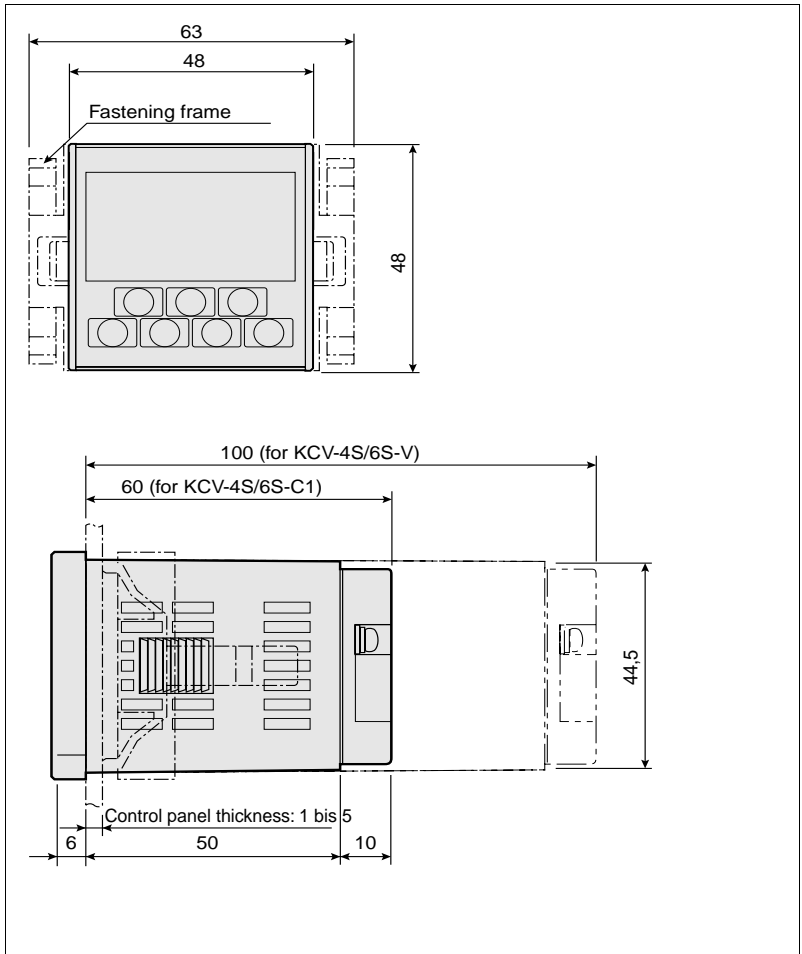


Fig. 9.1: Dimensions KCV-...

Issue date 27.07.98

KCV-4S-V, KCV-4S-C1, KCV-6S-V, KCV-6S-C1
Technical Data

Issue date 05.08.99

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the Central Association of the 'Elektrotechnik und Elektroindustrie (ZVEI) e.V.',
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