



- Input: pulse counter, time meter
- Display: 6-digit LED
- Height of digits: 14/8 mm
- Operation with front-panel buttons
- Material: plastic
- Case:  
96x48 mm and 48x24 mm
- Panel mounting
- Power supply:  
24 V<sub>DC</sub> / 90-260 V<sub>AC</sub>
- Protection type:  
IP 65 from the front



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ARGENTINA, AUSTRIA, BELGIUM, BRAZIL, CANADA,  
CHINA, COLOMBIA, FRANCE, GREAT BRITAIN, NETHERLANDS,  
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Model:  
ZEC

DIN case  
48 x 24



### Mating connectors

The electronic pulse counters, KOBOLD type series ZEC, serve as combination devices for time metering and pulse counting. The input pulse can be of any shape due to an integrated Schmitt trigger. The display can be read correctly even in badly lit positions. The negligible mounting depth means that the device takes up very little space when installed in a control cabinet or a control panel. Programming and operation is carried out with two buttons on the front panel. The buttons have been designed to allow operation even when wearing gloves.

The pulse counters and time meters have the following functions:

- **Inputs:**
  - a counting input;
  - a start/stop or gate input;
  - a reset input  
(the affect can be separately programmed and inhibited on both channels in the setup);
  - the polarity of the inputs is programmable
- adjustable scaling factor
- scale range from 0–999 999 with leading zero suppression
- The period on the lowest decade flashes when counting is enabled;  
removal of suppression of leading zeros for overflow
- **Display:**
  - lpulse counter: decimal point indicating only
  - Time meter: s, min, h or h.m.s
  - decimal point determines resolution
- SET button for reset  
(can be inhibited separately for each counter in the setup)
- Button 2 for toggling between pulse counter, and time meter

### Operation

#### Reset counter

The red reset button is pressed together with the reset input which resets the counter.

#### Selecting the displayed value

You can toggle between displaying the pulse counter and the time meter by pressing the right-hand button.

If you press the button once the current function (»TOTAL« or »TIME«) is displayed for 2 seconds. If you press the right-hand button a second time within this period, the function is changed over and »TIME« or »TOTAL« is displayed for confirmation.

#### Setting device parameters

- a. Keep both buttons on the front pressed and switch on the power.
- b. »ProG« appears on the screen.
- c. When the buttons are released menu title and current menu item setting appear alternating every second. When a button is pressed only the menu item setting appears.
- d. Press the right-hand button to advance the menu item setting by one value.  
  
To enter numerical values (e.g., for factor setting), select the decade with the left-hand button and set the value with the right-hand button.
- e. To select the next menu item press the right-hand button while keeping the left-hand button pressed.
- f. When »YES« is selected in the final menu title »ENDPro« you exit the programming menu and the new values are saved.  
  
Should you select »NO«, the programming routine starts from the beginning, whereby the last set values are saved. These values can now be checked or altered.

#### Areas of application

- Mechanical engineering
- Plant engineering
- Construction machinery
- Chemical industry
- Process visualization

**Technical Details**

Max. counting frequency: 20 kHz -  
can be damped to 30 Hz

Display: 6-digit, red,  
7-segment LED  
8 mm high characters

Scale range: 0 to 999 999  
with leading zero suppression

Accuracy of time meter: < 50 ppm

Ambient temperature: -10 to +50°C

Storage temperature: -25 to +70°C

Case: plastic

Dimensions: 48 x 24 x 66 mm (w x h x d)

Panel cut-out: 45 x 22 mm or 50 x 25 mm

**Inputs:**

INP A: counting input dynamic  
for pulse counters

INP B: start/stop or gate input for  
time meters (depending on  
type of input selected)

RESET: dynamic reset input

Switching level low: : 0 V<sub>DC</sub> to 0.2 x power supply

Switching level high: 0.6 x power supply to 30 V<sub>DC</sub>

Input resistance: approximately 10 kΩ

Polarity of input signals: common programming for  
all inputs (NPN or PNP)

Minimum pulse duration  
of reset input: 5 ms

Pulse envelope: any (Schmitt trigger inputs)

Data back-up: EEPROM 1 x 10<sup>6</sup>  
storage cycles or 10 years

Noise immunity: EN 50081-2;  
EN 55011 class B;  
EN 50082-2

Power supply: 10-30 V<sub>DC</sub>, max. 50 mA

Protection type: IP 65

Weight: approximately 50 g

**Scope of supply:**

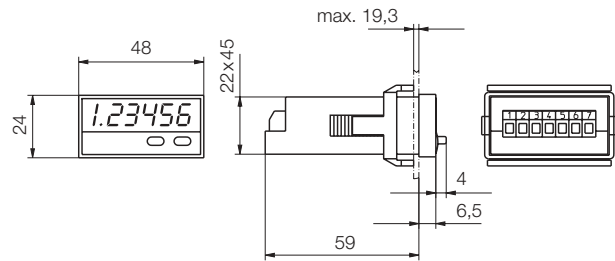
- ZEK-1K30
- Panel clamp
- Front-panel frame for screw fixing
- Panel cut-out 45 x 22 mm
- Panel cut-out 50 x 25 mm
- Seal

**Pin assignment:**

1	2	3	4	5	1	10-30 V <sub>DC</sub>
					2	0 V (GND)
					3	INP A
					4	INP B
					5	RESET

**Order details: ZEC-1K30**

**Dimensions:**





DIN case  
96 x 48



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The pulse counters and time meters have the following functions:

- **Inputs:**
  - a counting input;
  - a start/stop or gate input;
  - a reset input  
(the affect can be separately programmed and inhibited on both channels in the setup);
  - the polarity of the inputs is programmable
- eadjustable scaling factor
- scale range from 0–999 999 with leading zero suppression
- The period on the lowest decade flashes when counting is enabled;  
removal of suppression of leading zeros for overflow
- **Display:**
  - Pulse counter: decimal point indicating only
  - Time meter: s, min, h or h.m.s  
decimal point determines resolution
- SET button for reset  
(can be inhibited separately for each counter in the setup)
- Button 2 for toggling between pulse counter, and time meter

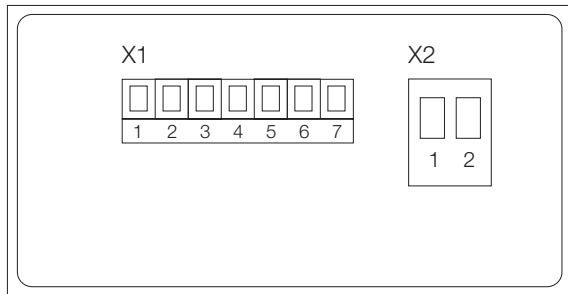
### Areas of application

- Mechanical engineering
- Plant engineering
- Construction machinery
- Chemical industry
- Process visualization

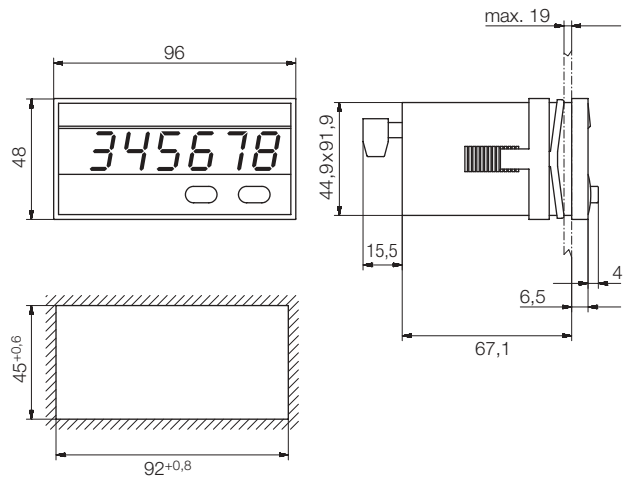
### Technical Details

Max. counting frequency:	20 kHz - can be damped to 30 Hz
Display:	6-position, red, 7-segment LED 14.2 mm high characters
Scale range:	0 to 999 999 with leading zero suppression
Accuracy time meter:	< 50 ppm
Ambient temperature:	-10 to +50 °C
Storage temperature:	-25 to +70 °C
Case:	plastic
Dimensions:	96 x 48 x 74 mm (w x h x d)
Panel cut-out:	92 x 45 mm
<b>Inputs:</b>	
INP A:	counting input dynamic for pulse counters
INP B:	start/stop or gate input for time meter (depending on type of input selected)
RESET:	dynamic reset input
Switching level low:	0 - 4 V <sub>DC</sub> (AC power supply) 0 V <sub>DC</sub> to 0.2 x U <sub>B</sub> (DC-power supply U <sub>B</sub> )
Switching level high:	12 - 30 V <sub>DC</sub> (AC power supply) 0.6 x U <sub>B</sub> to 30 V <sub>DC</sub> (DC power supply U <sub>B</sub> )
Input resistance for logic inputs:	approximately 10 kΩ
Polarity of input signals:	common programming for all inputs (NPN or PNP)
Minimum pulse duration of reset input:	5 ms
Pulse envelope:	any (Schmitt trigger inputs)
Data back-up:	EEPROM 1 x 10 <sup>6</sup> storage cycles or 10 years
Noise immunity:	EN 50081-2; EN 55011 class B; EN 50082-2
Power supply:	90 - 260 V <sub>AC</sub> , max. 6 VA or 10 - 30 V <sub>DC</sub> , max. 50 mA
Sensor supply:	24 V <sub>DC</sub> ± 15% / 100 mA (AC version only)
Protection type:	IP 65 from the front
Weight:	approximately 150 g

**Pin assignment**



**Dimensions:**



**Pin assignment X2**

Terminal no.	AC version	DC version
1	supply 90-260 V <sub>AC</sub>	supply GND
2	supply 90-260 V <sub>AC</sub>	supply 10-30 V <sub>DC</sub>

**Scope of supply:**

- ZEC-4K
- Panel clamp
- Seal

**Pin assignment X1**

Terminal no.	AC version	DC version
1	nc.	nc.
2	nc.	nc.
3	RESET	RESET
4	INP B	INP B
5	INP A	INP A
6	GND out	nc.
7	+24 V <sub>DC</sub> out	nc.

**Order details** (Example: ZEC-4K 00)

Model	Description	Power supply
ZEC-4K	Electronic pulse counter, and time meter combination device DIN case 96 x 48 mm	00 = 90-260 V <sub>AC</sub> 30 = 10-30 V <sub>DC</sub>

Please refer to our brochure Z4...



...for time measurement