



- Input:
pulse and frequency counters,
time meters, position indicator
- Display: 6-digit LED
- Height of digits: 14 mm
- Operation with front-panel buttons
- Material: plastic
- Case: 96x48 mm
- Panel mounting
- Power supply:
24 V_{DC} / 90-260 V_{AC}
- Protection type:
IP 65 from the front



KOBOLD offices exist in the following countries:

ARGENTINA, AUSTRIA, BELGIUM, BRAZIL, CANADA,
CHINA, COLOMBIA, FRANCE, GREAT BRITAIN, NETHERLANDS,
POLAND, SWITZERLAND, USA, VENEZUELA

KOBOLD Messring GmbH
Nordring 22-24
D-65719 Hofheim/Ts.
☎ (06192) 299-0
Fax (06192) 23398
E-mail: info.de@kobold.com
Internet: www.kobold.com

Model:
ZEC-4M



Mating connectors

The electronic pulse counters, KOBOLD type series ZEC-4M, serve as combination devices for time metering and pulse counting as well as for position indication. 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 following standard functions can be selected:

- pulse counter/position indicator
- frequency counter/tachometer function
- time meter

The counters can be fitted with an optocoupler as an option. The function is defined and specified in the following table:

Standard counter function	Indicated/measured value	Optocoupler function
Pulse counter	Output reading ≤ 0	Output enabled (presetting counter)
Frequency counter	f=0	output enabled (standstill counter)
Time meter	counting enabled	Enabled/disabled frequency output: 1Hz

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
11 kHz for counting with phase discrimination

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

Scale range: 0 to 999 999 with leading zero suppression -199 999 to 999 999 (pulse counter/position indicator)

Accuracy: < 50 ppm (time meter)
< 0.1% (tacho/frequency counter)

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

Inputs:

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_{DC}
(AC power supply)
0 V_{DC} to 0.2 x U_B
(DC power supply U_B)

Switching level high: 12 - 30 V_{DC}
(AC power supply)
0.6 x U_B to 30 V_{DC}
(DC power supply U_B)

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 10⁶ storage cycles or 10 years

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

Optical isolator output: max. 30 V / 15 mA

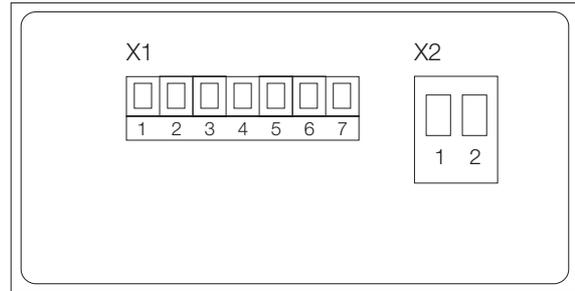
Power supply: 90 - 260 V_{AC}, max. 6 VA or
10 - 30 V_{DC}, max. 50 mA

Sensor supply: 24 V_{DC} ± 15% / 100 mA (AC version only)

Protection type: IP 65 from the front

Weight: approximately 150 g

Pin assignment



Pin assignment X2

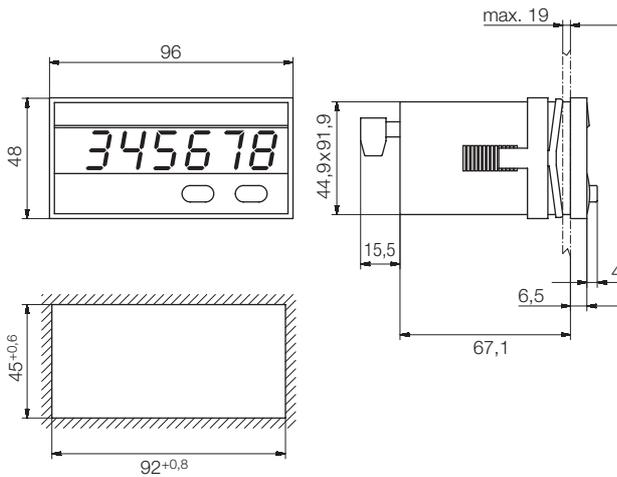
Terminal no.	AC version	DC version
1	supply 90 - 260 V _{AC}	supply GND
2	supply 90 - 260 V _{AC}	supply 10 - 30 V _{DC}

Pin assignment X1

Terminal no.	AC version	DC version
1	optical isolator output emitter	optical isolator output emitter
2	optical isolator output collector	optical isolator output collector
3	RESET (nc. for frequency counter)	RESET (nc. for frequency counter)
4	INP B (nc. for frequency counter)	INP B (nc. for frequency counter)
5	INP A	INP A
6	GND out	nc.
7	+24 V _{DC} out	nc.



Dimensions:



Scope of supply:

- ZEC-4M
- Panel clamp
- Seal

Order details (Example: ZEC-4M 0 0)

Model	Description	Power supply	Output
ZEC-4M	Electronic pulse and frequency counters, time meters, position indicator, multifunction device DIN case 96 x 48 mm	0 = 90 - 260 V _{AC} 3 = 10 - 30 V _{DC}	0 = without 1 = optocoupler