



- Input:
time meter, pulse counter, position indication, frequency counter
- Display: 6-position LED
- Height of digits: 14 mm
- Operation with front-panel buttons
- Material: plastic
- Housing: 96 x 48 mm
- Panel mounting
- Power supply:
24 V_{DC}/90-260 V_{AC}
- Protection type: IP 65 at front



KOBOLD offices exist in the following countries:

ARGENTINA, AUSTRIA, BELGIUM, BRAZIL, CANADA, CHINA,
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Model:
ZEC-4



Description

The electronic hour meters, KOBOLD type series ZEC-4Z, provide economical time measurement. The input signal can be of any shape due to an integrated Schmitt trigger. The display can be read correctly even in badly lit installation 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 time meter has the following functions:

- Scale range from 0-999 999 with suppression of leading zeros
- The period on the lowest decade flashes when counting is enabled; removal of suppression of leading zeros for overflow
- Display:
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)
- Optical isolator output (optional), active during counting
- The following features are programmable:
input polarity (npn or pnp)
attenuation of inputs
type of input
operating mode
decimal point
- Reset:
electrical,
manual,
Manual and electrical no reset

Typical applications

- Machine construction
- Plant engineering
- Construction machinery
- Chemical industry
- Process visualization

Technical details

Max. counting frequency: can be attenuated from 20 kHz to 30 Hz

Display: 6-position, red 7-segment LED 14.2 mm high digits

Scale range: 0 to 999 999 with suppression of leading zeros

Accuracy: < 50 ppm

Ambient temperature: -10 to +50°C

Storage temperature: -25 to +70°C

Housing: plastic

Dimensions: 96 x 48 x 74 mm (w x h x d)

Panel cut-out: 92 x 45 mm

Inputs

INP A: stop input (depending on type of input set)

INP B: start/stop or gate input (depending on type of input set)

RESET: dynamic reset input

Switching level low: 0-4 V_{DC} (AC power supply) 0 V_{DC}-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-30 V_{DC} (DC power supply U_B)

Input resistance for logic inputs: approx. 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 at front

Weight: approx. 150 g

Order details (example: ZEC-4Z 0 0)

| Model | Description | Power supply | Output |
|--------|---|--|--|
| ZEC-4Z | Electronic hour meter Short-duration timer DIN housing 96 x 48 mm | 0 = 9 - 260 V _{AC} 3 = 10 - 30 V _{DC} | 0 = without 1 = optocoupler |



Description

The electronic pulse counters, KOBOLD type series ZEC-4K, 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 installation 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:
 - one counting input,
 - start/stop or gate input,
 - a reset input
 (the effect 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 suppression of leading zeros
- 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

Typical applications

- Machine construction
- Plant engineering
- Construction machinery
- Chemical industry
- Process visualization

Technical details

Max. counting frequency: can be attenuated from 20 kHz to 30 Hz

Display: 6-position, red 7-segment LED 14.2 mm high digits

Scale range: 0 to 999 999 with suppression of leading zeros

Accuracy of time meter: < 50 ppm

Ambient temperature: -10 to +50 °C

Storage temperature: -25 to +70 °C

Housing: 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 counter

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

RESET: dynamic reset input

Switching level low: 0-4 V_{DC} (AC power supply) 0 V_{DC}-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-30 V_{DC} (DC power supply U_B)

Input resistance for logic inputs: approx. 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

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 at front

Weight: approx. 150 g

Order details (example: ZEC-4K 3 0)

| Model | Description | Power supply |
|--------|---|---|
| ZEC-4K | Electronic hour meter Pulse and time meter Combination device DIN housing 96 x 48 mm | 00 = 90-260 V _{AC} 30 = 10-30 V _{DC} |



Description

The electronic meters, KOBOLD type series ZEC-4M, serve as multifunction devices for time metering, frequency and pulse counting, and 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 installation 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 are selectable:

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

The meter can be fitted with an optocoupler as an option. The functions are defined and specified in following table:

| Standard meter functions | Indicated value/ measured value | Des optocoupler functions |
|--------------------------|---------------------------------|---|
| Pulse counter | Indicated value ≤ 0 | Output active (presetting counter) |
| Frequency counter | $f = 0$ | Output active (standstill counter) |
| Time meter | With active counting | Frequency output activated / de-activated: Hz |

Typical applications

- Machine construction
- Plant engineering
- Construction machinery
- Chemical industry
- Process visualization

Technical details

Max. counting frequency: can be attenuated from 20 kHz to 30 Hz 11 kHz when counting with phase discriminator

Display: 6-position, red 7-segment LED 14.2 mm high digits

Scale range: 0 to 999 999 with suppression of leading zeros -199 999 to 999 999 (pulse counter/position indication)

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

Ambient temperature: -10 to +50 °C

Storage temperature: -25 to +70 °C

Housing: 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 counter

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

RESET: dynamic reset input

Switching level low: 0-4 V_{DC} (AC power supply) 0 V_{DC}-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-30 V_{DC} (DC power supply U_B)

Input resistance for logic inputs: approx. 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 at front

Weight: approx. 150 g

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

| Model | Description | Power supply | Output |
|--------|--|---|--|
| ZEC-4M | Electronic hour meter Pulse, frequency and time meter Multifunction device DIN housing 96 x 48 mm | 0 = 90-260 V _{AC} 3 = 10-30 V _{DC} | 0 = without 1 = optocoupler |