Totalizing, Batching, and Monitoring Electronics
Pulse Input

- Backlit LCD-Display
- 2 Pulse Inputs (NPN, PNP, NAMUR, Reed Switch, etc.)
- Analog, Switching, Pulse, Relay and Status Outputs
- Sensor Supply
- Fully Scalable
- Universal or Panel Mount Housing

ZOK

Backlit LCD-Display
2 Pulse Inputs (NPN, PNP, NAMUR, Reed Switch, etc.)
Analog, Switching, Pulse, Relay and Status Outputs
Sensor Supply
Fully Scalable
Universal or Panel Mount Housing

KOBOLD Instruments, Inc.
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1.412.788.4890
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www.koboldusa.com
Description
The ZOK is designed to calculate, display, and transfer calculations and flow rates of flow meters with pulse or frequency outputs. It displays flow rate, a resettable day count, and a total count. An easy to use menu guides you through the programming. All program settings are retained, even during a battery change. Option ZOK-ZxP is offered in a panel housing with a protection of IP44. The electronic option ZOK-ZxK is weather resistant and offers IP66/67 ingress protection. The electronics are housed in a UV-resistant, glass-filled plastic housing with stainless steel screws and FKM seals. The ZOK-ZxF is available in a powder coated aluminum extruded housing with a plastic lid and offers IP 66/67 protection. They are all suitable for harsh indoor or covered outdoor environments and complies with EU Directive 2004/108/EC for electromagnetic compatibility.

Features:
- Self or External Powered, 8 Digit LCD Resettable and Cumulative Totalizer, 5 Digit Rate Display as Main Value
- Rugged Field or Meter Mount Housing with Protective Cover
- Easy to Program
- Accepts Universal Pulse Inputs
- Rugged IP66/67 Universal Mount or DIN Panel Mount
- Long Battery Life
- Reverse Polarity Protection
- Optional Display Backlighting
- Preamplified Pulse
- Scalable Pulse Output
- Optional Wall or Pipe Mounting

Technical Details
External Power Supply:

<table>
<thead>
<tr>
<th>5...28 Vdc (without using the Analog Output)</th>
<th>8...28 Vdc (with using the Analog Output)</th>
<th>12...28 Vdc (with Relay Output)</th>
</tr>
</thead>
</table>

Max. Consumption:
Approx. 70 mA (with Full Backlight, without Outputs)

Ex Versions:
\[ U_i = 28V \]
\[ I_i = 100 mA \]
\[ P_i = 0.7 W \]

Battery:
3.6 V/2200 mAh
Size AA Lithium

Battery Life
in Battery Mode:
Dep. on "Sleep" Mode Settings
Max. 17 Months, Min. 3 Months

Display:
LCD, Backlight Adjustable (only with External Power Supply)

Display Value:
0.49"

Display Resolution:
5 Digits, Based on Measuring Range End Value

Display Units:
Liters, Milliliters, Gallons (US or UK), Barrel, m³, User Defined Engineering Units

Input Scaling Range:
0.001 ... 99,999,999 with 3 Floating Decimal Points

Mount:
Meter Mount, Wall, Surface, Pipe or Panel Mount, Field Mount

Measuring Inputs
Type:
NPN, PNP, NAMUR, Reed, Hall, Active (Configurable with Software)

Input Frequency:
0.1 ... 1000 Hz, High-Low-Threshold 1 Vdc, Max. Input Amplitude 30 Vdc

Accuracy:
< 0.1 % of Reading (the Accuracy of the Displayed Value Depends on the Adjusted Scale and Display Resolution)

Sensor Supply:
8 Vdc, Max. 30 mA (with External Supply > 10 Vdc)

Arithmetic Functions:
A+B, A-B, with Scalable Analog Output
Totalizing, Batching, and Monitoring Electronics Model ZOK

Additional Data for Option ZOK-ZxP and ZOK-ZxF

Power Supply
Option "-6": 12...28 Vdc
Option "-0": 90 - 260 Vac
Battery Operation only Possible with ZOK-ZxF with Supply Option 3
(See Table on Page 7 for Details)

Sensor Supply
Option "-3": 8V with Supply Voltage ≥ 8.5 Vdc
Options "-0" and "-6": 8V or 24V Selectable, Max. 30 mA

Relay Output: 2 SPDT Dry (Changeover)
Contacts, Max. Switching Voltage 230 Vac/Dc, Max. Current Load Dependent
(See Diagram)

Analog Output (only for ZOK-Z3P): 4 - 20 mA, 3-wire, Current Sourcing

Housings
ZOK-ZxP Panel Mount: 3.8” x 3.8”, Depth 2.4”
(Protection: Front IP65, Back IP20)
ZOK-ZxF Field Mount: 4.6” x 4.6”, Depth 5”
Aluminum Housing with PA6 Plastic Cover
(Protection: IP 65)

Cable Entry
ZOK-ZxP: 3 x Screw Terminals
ZOK-ZxF: 3 x M16x1.5/2xPG13.5

Reading Retention: Integrated, Non-volatile Memory

Ambient Temperature: -4...176°F

Max. DC Load Breaking Capacity

DC voltage [VDC]
0 10 20 30 40 50
DC current [A]
0,1 0,2 0,5 1 5 10 20

resistive load
# ZOK Overview

<table>
<thead>
<tr>
<th>Function</th>
<th>Z1P/Z1F</th>
<th>Z1K/M/0</th>
<th>Z2P/Z2F</th>
<th>Z2K/M/0</th>
<th>Z3P/Z3F</th>
<th>Z3K/M/0</th>
<th>E1K/M/0</th>
<th>E2K/M/0</th>
<th>E3K/M/0</th>
<th>E4K/M/0</th>
<th>E5K/M/0</th>
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</thead>
<tbody>
<tr>
<td>Dual Counter</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
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<td>X</td>
<td>X</td>
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## Certification

- ATEX IECEX Certification: X X X X X X

## Power Supply

<table>
<thead>
<tr>
<th>Function</th>
<th>DC-Supply</th>
<th>AC-Supply</th>
<th>Battery Operation (Output Deactivated)</th>
<th>Battery Included in Shipment</th>
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<tr>
<td></td>
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## Sensor Supply (Only with External Power Supply)

<table>
<thead>
<tr>
<th>Sensor Supply</th>
<th>8 V / 24 V</th>
<th>8 V</th>
<th>8 V / 24 V</th>
<th>8 V</th>
<th>8 V</th>
<th>8 V</th>
<th>8 V</th>
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## Electrical Outputs (Only with External Supply)

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<th>Relay Outputs</th>
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<tbody>
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<td>Status Outputs</td>
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<td>X</td>
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<tr>
<td>Analog Outputs</td>
<td>3L</td>
<td>2L / 3L</td>
<td>2L / 3L</td>
<td>2L / 3L HART®</td>
<td>3L</td>
<td>2L / 3L HART®</td>
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## LCD Display

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<th>Selectable Units</th>
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<td>Decimal Point</td>
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<td>Accumulative Total</td>
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<td>Resettable Total</td>
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<td>Linearization</td>
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<tr>
<td>Rate Display</td>
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<td>Backlighting</td>
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<tr>
<td>Arithmetic Functions</td>
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</tr>
</tbody>
</table>

1) Optocoupler board serves as a galvanic separation to be used in ATEX area
2) Battery operation only applicable with a passive sensor (i.e. reed switch)
Display


![Display Image](image-url)

- Part- or total volume display input A
- Part- or total volume display input A
- Unit associated to main display

- Volume flow display input A
- Part- or total volume display input A
- Unit associated to main display
Display (Continued)
Display Layout in Measuring Mode for Dual Channel (ZOK-Z1/E1/Z3/E4/E5)

ZOK-Z2/E2 Batching Unit
## Order Details (Example: ZOK-Z1 K MF 3 00)

<table>
<thead>
<tr>
<th>Model</th>
<th>LCD Electronics</th>
<th>Housing Type</th>
<th>Electrical Connection/ Cable Gland</th>
<th>Power Supply</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZOK-..Z1.. = Dual Totalizer, LCD</td>
<td>Universal Mount (Standard, Round Plastic without Holder Plates, without Holes)</td>
<td>..0.. = 3 x M20 x 1.5 Cable Entry</td>
<td>Standard</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>..Z2.. = Batching Unit, LCD</td>
<td>Universal Mount (Standard, Round Plastic with Holder Plates)</td>
<td>..K.. = Terminal on the Back</td>
<td>Standard</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>..Z3.. = LCD Rate Totalizer with 4-20 mA Output, 4-20 mA HART®</td>
<td>Universal Mount (Round Plastic for Retrofitting Model DON)</td>
<td>..M.. = 3xM16x1.5</td>
<td>Standard</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>..E1.. = Same as Z1 with ATEX/IECEx Approval</td>
<td>Universal Mount (Standard, Round Plastic with Holder Plates)</td>
<td>..P.. = Panel Mount 3.8&quot; x 3.8&quot;</td>
<td>Standard</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>..E2.. = as Z2 with ATEX/IECEx Approval</td>
<td>Universal Mount (Standard, Round Plastic with Holder Plates)</td>
<td>..F.. = Field Housing</td>
<td>Standard</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>..E3.. = Same as Z3 with ATEX/IECEx Approval, 4-20 mA without Pulse Switching Output</td>
<td>Universal Mount (Standard, Round Plastic with Holder Plates)</td>
<td>..0.. = 90...260 VAC</td>
<td>Standard</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>..E4.. = As E3 with HART®</td>
<td>Universal Mount (Standard, Round Plastic with Holder Plates)</td>
<td>..R.. = 2 Relays</td>
<td>Standard</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>..E5.. = As E3 with 4-20 mA and with Switching Outputs</td>
<td>Universal Mount (Standard, Round Plastic with Holder Plates)</td>
<td>..0.. = 2 Optocouplers</td>
<td>Standard</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

### Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless Steel Wall Mount Kit</td>
<td>ERS-ZOK-023618</td>
</tr>
<tr>
<td>Stainless Steel 2&quot; Pipe Mount Kit</td>
<td>ERS-ZOK-003402</td>
</tr>
<tr>
<td>Cooling Fin for High Temperature Flowmeter</td>
<td>ERS-ZOK-023619</td>
</tr>
<tr>
<td>ATEX Battery Pack, 3.6 V (Comes Standard with ZOK-E1/E3/E4)</td>
<td>ERS-BATEX036</td>
</tr>
</tbody>
</table>

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1) Without Backlighting

No responsibility taken for errors; subject to change without prior notice. www.koboldusa.com
Totalizing, Batching, and Monitoring Electronics Model ZOK

Dimensions

ZOK-ExK/-ZxK

ZOK-ExM/-ZxM

ZOK-ZxP

ZOK-ZxF

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