

# Totalizing, Batching, and Monitoring Electronics

Pulse Input



measuring  
•  
monitoring  
•  
analyzing

ZOK



2" Pipe Mount Kit



Wall Mount Kit



- 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



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**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. It is 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

**Technical Details**

**External Power Supply:** 5...32 V<sub>DC</sub> (without using the Analog Output)  
8...32 V<sub>DC</sub> (with using the Analog Output)

**Max. Consumption:** Approx. 40 mA (with Full Backlight, without Outputs)

**Battery:** 3.6 V / 2200 mAh  
Size AA Lithium

**Battery Life**

**in Battery Mode:** Approx. 12 Months (not Applicable for ZOK-ZxP Panel Mount)

**in Data Backup Mode:** >5 years

**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, m<sup>3</sup>, User Defined Engineering Units

<b>Input Scaling Range:</b>	0.001 ... 99,999.999 with 3 Floating Decimal Points
<b>Mount:</b>	Meter Mount, Wall, Surface, Pipe or Panel Mount
<b>Measuring Inputs Type:</b>	2x Pulse Input NPN, PNP, NAMUR, Reed, Hall, Active (Configurable with Software)
<b>Input Frequency:</b>	0.1 ... 1000 Hz, High-Low-Threshold 1 V <sub>DC</sub> , Max. Input Amplitude 30 V <sub>DC</sub>
<b>Accuracy:</b>	<0.1 % of Measuring Value (the Accuracy of the Displayed Value Depends on the Adjusted Scale and Display Resolution)
<b>Sensor Supply:</b>	8 V <sub>DC</sub> , Max. 30 mA (with External Supply > 10 V <sub>DC</sub> )
<b>Arithmetic Functions:</b>	A+B, A-B, with Scalable Analog Output



**Outputs**

**Status Output:** Transistor Output, PNP,  
Max. 300 mA,  
Overload Protected

**Output ZOK-Z2**  
**Relay Output (Optional)**  
**(Z2 Only):** 2 SPDT Dry (Changeover)  
Contacts, Max. Switching  
Voltage 230 V<sub>AC/DC</sub>, Max.  
Current Load Dependent  
(See Diagram)

**Switching Output**  
**(Z2/Z3 Only):** Transistor Output PNP, NPN or  
Push-Pull (PP), with Software  
Configurable

**Max. Output Current:** 300 mA (Source/Sink),  
Overload Protected

**Output ZOK-Z3 or E3**  
**Pulse Output (-x3 Only):** Transistor Output, Push Pull (PP),  
Max. 300 mA,  
Overload Protected

**Analog Output**  
**(only -x3):** 4 - 20mA, 2 Conductor Loop  
Operation or 3-wire Operation  
(Current Source or Sink)  
Selectable by External Wiring,  
Free Scaling,  
Max. Load: 750 Ω at 24 V<sub>DC</sub>,  
250 Ω at 14 V<sub>DC</sub>,  
150 Ω at 12 V<sub>DC</sub>,  
Resolution: 16 bits

**Operation:** 4 Buttons

**Housing:** Plastic, PA6, GF-enhanced

**Ingress Protection:** IP66/67 (Not for Panel  
Mounting)

**Cable Entry:** 3xM20x1.5 or 1/2" NPT  
(Prepared, Not for Panel  
Mounting)

**Electrical Connection:** Plug-in Terminals

**Ambient Temperature**  
**ZOK-Z:** -4 ... 176 °F  
**ZOK-E:** 32 ... 140 °F

**Additional Data for Option ZOK-ZxP**

**Power Supply**  
**Option "-3":** 8 ... 32 V<sub>DC</sub>  
**Option "-0":** 85 - 240 V<sub>AC</sub>  
No Battery Operation

**Sensor Supply**  
**Option "-3":** Always 0.5 V Less  
than Power Supply  
**Option "-0":** Always 8V or  
23V Selectable

**Relay Output (Optional)**  
**(except ZOK-Z1P):** 2 SPDT Dry (Changeover)  
Contacts, Max. Switching  
Voltage 230 V<sub>AC/DC</sub>,  
Max. Current Load Dependent  
(See Diagram)

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

**Housing Dimensions:** Panel Mounted, 3.8" x3.8",  
Depth 2.4"

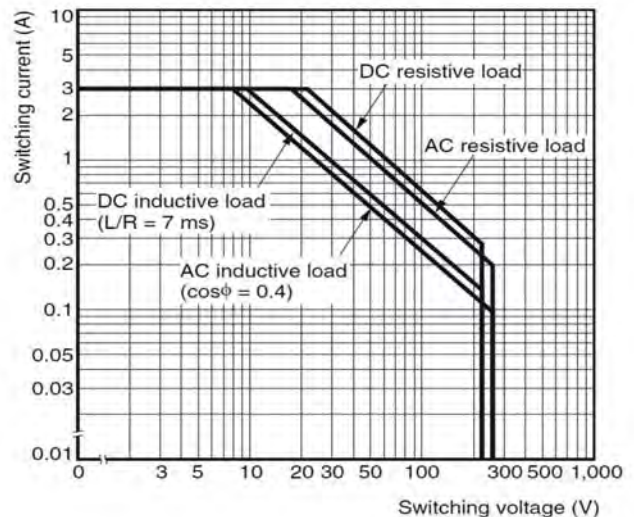
**Ingress Protection:** Front IP65, Back IP20

**Reading Retention:** Integrated, Non-volatile Memory

**Electrical Connection:** Plug-in Terminals

**Ambient Temperature:** -4 ... 176 °F

**Diagram**



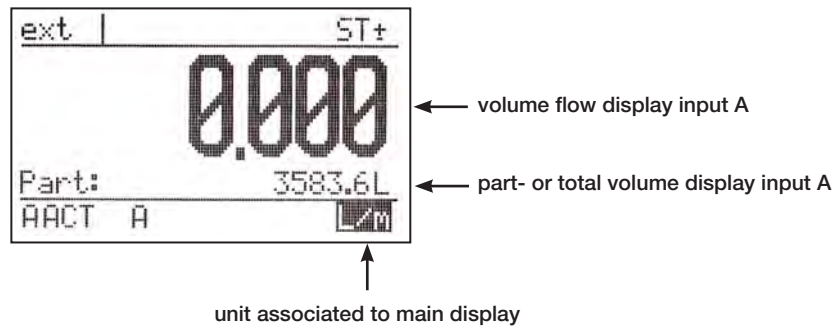
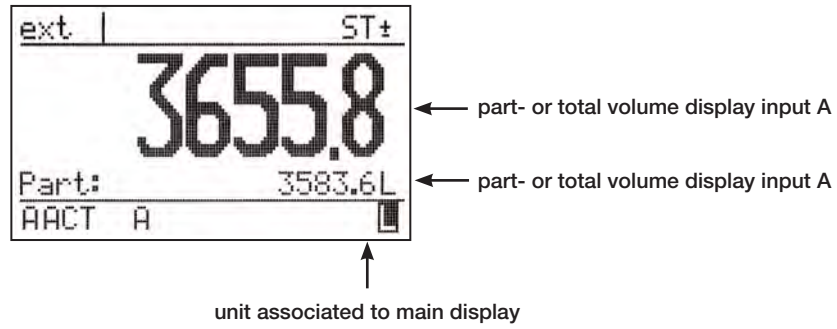


**ZOK Overview**

Function	Z1P	Z1K	Z2P	Z2K	Z3P	Z3K	E1K	E3K
Dual Counter	yes	yes	no	no	yes	yes	yes	yes
Batching Function	no	no	yes	yes	no	no	no	no
Controller Function	no	no	no	no	yes	yes	no	yes
<b>Certification</b>								
ATEX Certification	no	no	no	no	no	no	yes	yes
<b>Power Supply</b>								
DC-Supply	yes	yes	yes	yes	yes	yes	yes	yes
AC-Supply	yes	no	yes	no	yes	no	no	no
Battery Operation	no	yes	no	no	no	yes	yes	yes
<b>Sensor Supply (Only with External Power Supply)</b>								
Sensor Supply	8 V/ 23 V	8 V	8 V/ 23 V	8 V	8 V/ 23 V	8 V	8 V	8 V
<b>Electrical Outputs (Only with External Supply)</b>								
Relay Outputs	no	no	yes	yes	yes	no	no	no
Status Outputs	yes	yes	yes	yes	yes	yes	no	no
Analog Outputs	no	no	no	no	3-wire	2-wire or 3-wire	no	2-wire or 3-wire
Pulse Outputs	no	no	no	no	yes	yes	no	no
<b>LCD Display</b>								
Selectable Units	yes	yes	yes	yes	yes	yes	yes	yes
Decimal Point	yes	yes	yes	yes	yes	yes	yes	yes
Accumulative Total	yes	yes	yes	yes	yes	yes	yes	yes
Resettable Total	yes	yes	yes	yes	yes	yes	yes	yes
Linearization	yes	yes	no	no	yes	yes	yes	yes
Rate Display	yes	yes	yes	yes	yes	yes	yes	yes
Backlighting	yes	yes	yes	yes	yes	yes	yes	yes
Arithmetic Functions	yes	yes	no	no	yes	yes	yes	yes

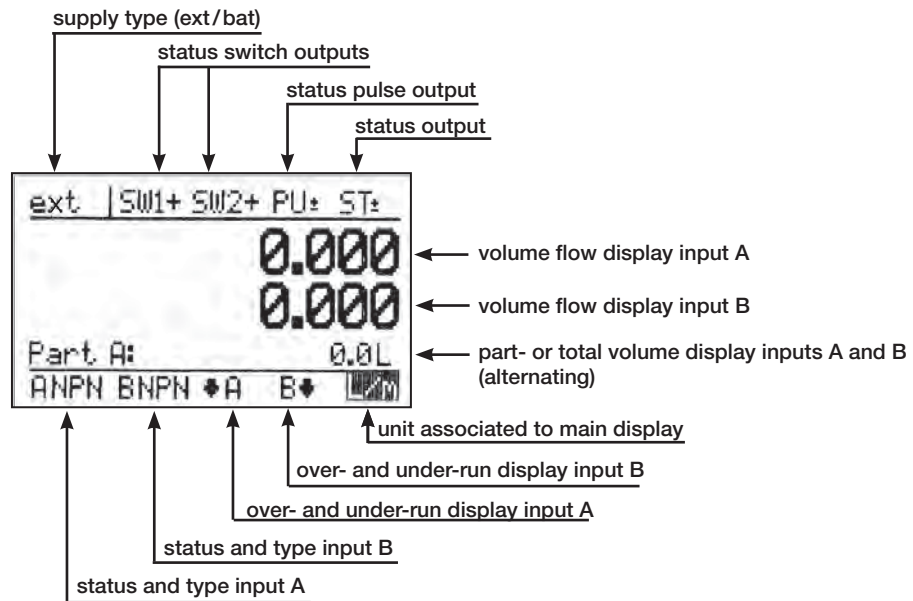
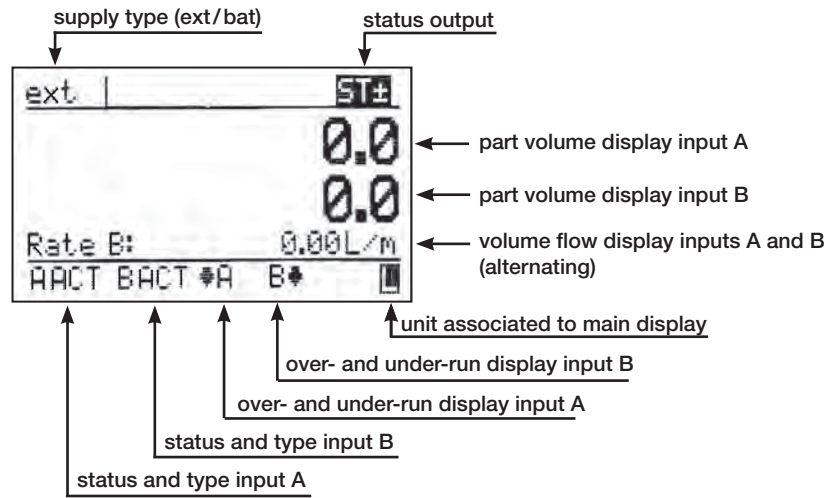
### Display

#### Display Layout in Measuring Mode Single Channel (ZOK-Z1/E1/Z3/E3)

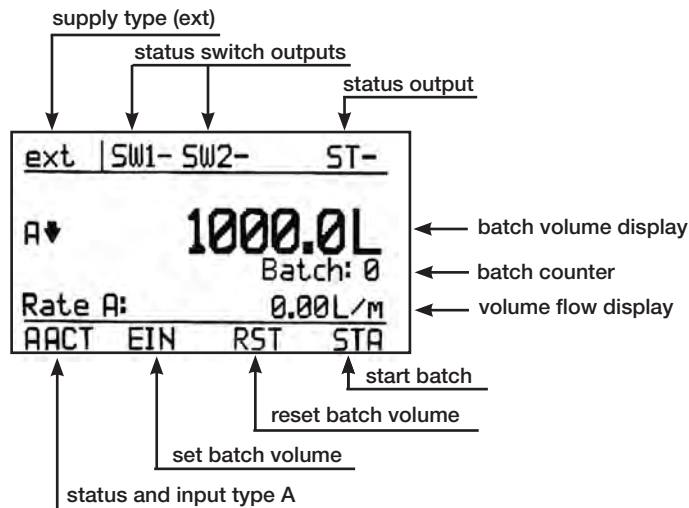


**Display (Continued)**

Display Layout in Measuring Mode for Dual Channel (ZOK-Z1/E1/Z3/E3)



**ZOK-Z2 Batching Unit**





**Order Details (Example: ZOK-Z1 K MF 3 00)**

Model	LCD Electronics	Housing Type	Electrical Connection/ Cable Gland	Power Supply	Options
ZOK-	..Z1.. = Dual Totalizer	..K.. = Universal Mount (Standard, Round Plastic with Holder Plates)	..MF <sup>3)</sup> .. = 3 x M20x1.5 Cable Entry	..3 <sup>4)</sup> .. = 8...24 V <sub>DC</sub> , Battery	..00 = without
	..Z2.. = Batching Unit				
	..Z3.. = Rate Totalizer with 4-20 mA Output	..M.. = Universal Mount (Round Plastic or Retrofitting Model DON)	..2F <sup>3)</sup> .. = 3 x 1/2" NPT Cable Entry	..0 <sup>2)</sup> .. = 85...240 V <sub>AC</sub>	..R0 <sup>6)</sup> = 2 Relays
	..E1.. = Same as Z1 with ATEX Approval (in Preparation)				
	..E3.. = Same as Z3 with ATEX Approval (in Preparation)	..P <sup>1)</sup> .. = Panel Mount 3.8" x 3.8"	..KF <sup>2)</sup> .. = Terminal on the Back		
	..F <sup>5)</sup> .. = Field Housing				

<sup>1)</sup> Not for ZOK-E1 and ZOK-E3

<sup>2)</sup> Only for housing ZOK-ZxP and ZOK-ZxF

<sup>3)</sup> Only for housing ZOK-xxK, ZOK-xxM and ZOK-xxF

<sup>4)</sup> Battery operation only for housing ZOK-xxK, ZOK-xxM, not for ZOK-Z2..

<sup>5)</sup> In preparation (not for ZOK-E1 and ZOK-E3)

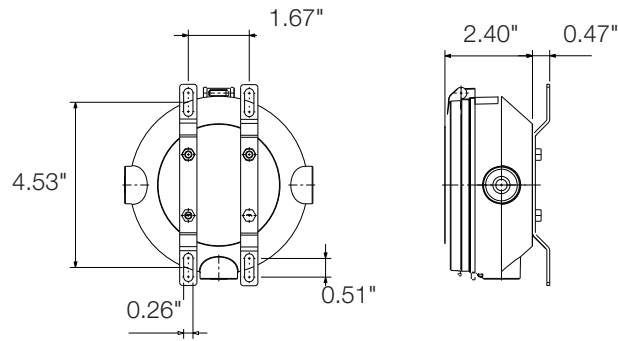
<sup>6)</sup> Standard for ZOK-xxP, optional for ZOK-ZxK and ZOK-ZxM... No battery operation available with relays

**Accessories**

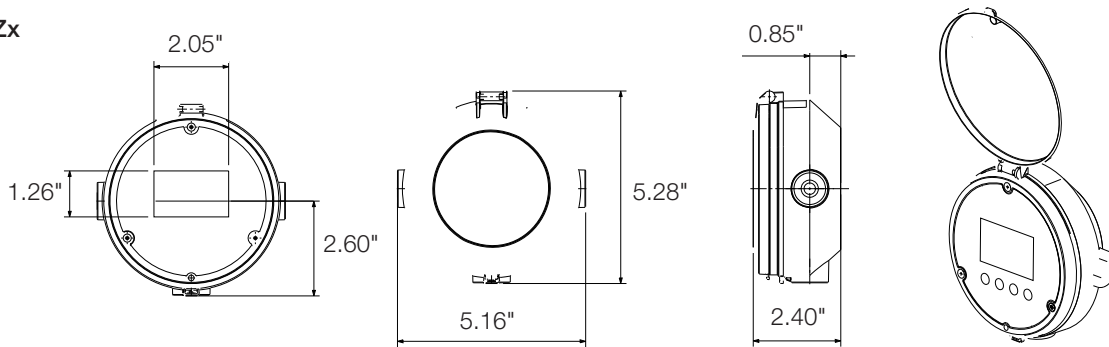
Description	Model
Stainless Steel Wall Mount Kit	ERS-ZOK-023618
Stainless Steel 2" Pipe Mount Kit	ERS-ZOK-003402
Cooling Fin for High Temperature Flowmeter	ERS-ZOK-023619

Dimensions

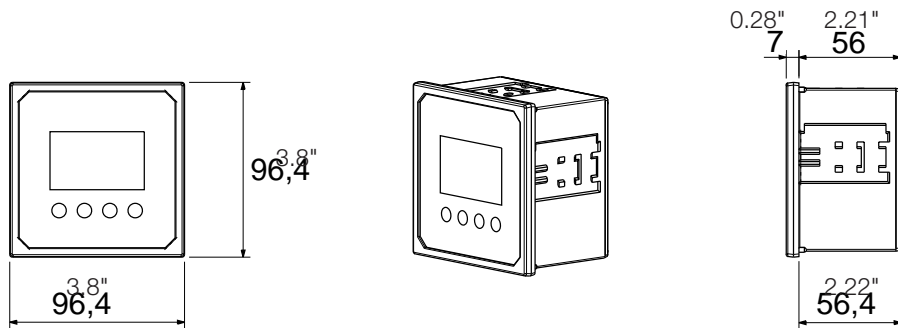
ZOK-ZxK



ZOK-Ex/-Zx



ZOK-ZxP



ZOK-ZxF