



Metering and Monitoring Electronics

Pulse Input



measuring
•
monitoring
•
analysing

ZOK



2" pipe mounting kit

Wall mounting kit



- LC-Display, background lighting
- 2 Pulse inputs (NPN, PNP, NAMUR, reed switch etc.)
- Analogue, switching, pulse, relay and status output
- Sensor supply
- Free scaling
- Universal housing or panel mounting



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Description

The electronic units ZOK-Xx are specifically designed for the calculation, display and transfer of calculations and flow rates of flow meters with pulse or frequency outputs. The instruments display flow rate, day counter (resettable) and total counter in the operator-selected units. A clear multilingual menu guides you through the programming of the device that largely eliminates the requirement of constant usage of operating manual. All user-specific program settings are retained even when changing the battery.

The electronics options ZOK-ZxK are weather resistant and adequately reflect IP66/67 (NEMA 4X). The electronics are housed in a UV-resistant, glass-filled nylon housing with stainless steel screws and FPM seals. The options ZOK-ZxP are in a panel housing 96x96 mm with protection class IP44. The instruments are suitable for harsh indoor or outdoor environments and comply with EU Directive 2004/108/EC (Electromagnetic Compatibility).

Significant Characteristics:

- Self or external powered, 8 digit LCD resettable and cumulative totaliser, 5 digit rate display as main value
- Robust field or meter mountable housing with protection cover
- Simple programming
- Accepts universal pulse inputs
- IP66/67 Robust universal mount or DIN panel mount
- Long battery life
- Reverse polarity protection
- Display backlighting option
- Pre-amplified pulse
- Scaleable pulse output

Technical Details

External power supply:	5 ... 32 V _{DC} (without using the analogue output) 8 ... 32 V _{DC} (with using the analogue output) max. power consumption: approx. 40 mA (with full backlight, without outputs)
Battery (data backup and battery operation):	3.6 V / 2200 mAh Lithium size AA
Battery life in battery mode:	approx. 12 months (not applicable for ZOK-ZxP [Panel mount])
Battery life in the data backup operation:	> 5 years
Display:	LCD, graphic 128x64, backlight adjustable (only with external supply)
Size of main display value:	6 mm
Display resolution of main display value:	5 digits, based on measuring range end value
Engineering units displayed:	litres, millilitres, gallons (US or UK), barrel, m ³ , user defined engineering units displayed
Input scaling range:	0.001 ... 99,999.999 with 3 floating decimal points
Mounting:	meter mount, wall, surface, pipe or panel mount
Measuring inputs:	2 x pulse input, Type: NPN, PNP, NAMUR, Reed, Hall, active (configurable with software) Input frequency: 0.1 ... 1000 Hz, High-Low-threshold 1 V _{DC} , max. Input amplitude 30 V _{DC}
Basic accuracy of flow measurement:	< 0.1 % of measuring value (the accuracy of the displayed value depends on the adjusted scale and display resolution)
Sensor supply:	8.2 V _{DC} , max. 30 mA (with external supply > 10 V _{DC})

For ZOK-ZxP see next page



Outputs

Status output: Transistor output, PNP, max. 300 mA, overload protection

Outputs ZOK-Z2

Relay outputs (only -Z2): potential-free changeover contacts, max. switching voltage 230 V_{AC/DC}, max. current load dependent (see diagram)

Switching outputs (only -Z2/Z3):

transistor output PNP, NPN or push-pull (PP), with software configurable, max. output current: 300 mA (source/sink), overload protection

Outputs ZOK-x3*

Pulse output (only -x3): transistor output, PNP, max. 300 mA, overload protection

Analogue output (only -x3): 4 - 20 mA, 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_{DC}, 250 Ω at 14 V_{DC}, 150 Ω at 12 V_{DC}, Resolution: 16 bits

Operation:

4 buttons

Housing:

plastic, PA6, GF-enhanced

Protection:

IP 66/67 (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: -20...+80 °C

ZOK-E: 0...+60 °C

Additional data for options ZOK-ZxP

Power supply: 8...32 V_{DC} Option (Option -3)
85-240 V_{AC} (Option -0)

no Battery operation

Sensor supply: always 0.5 V (Option -3)

less than power supply

always 8.2 V or

23 V selectable (Option -0)

Relay outputs (not ZOK-Z1P):

potential-free changeover contacts, max. switching voltage 230 V_{AC/DC}, max. Current load dependent (see diagram)

Analogue output (only ZOK-Z3P): 4 - 20 mA, 3-wire, current source

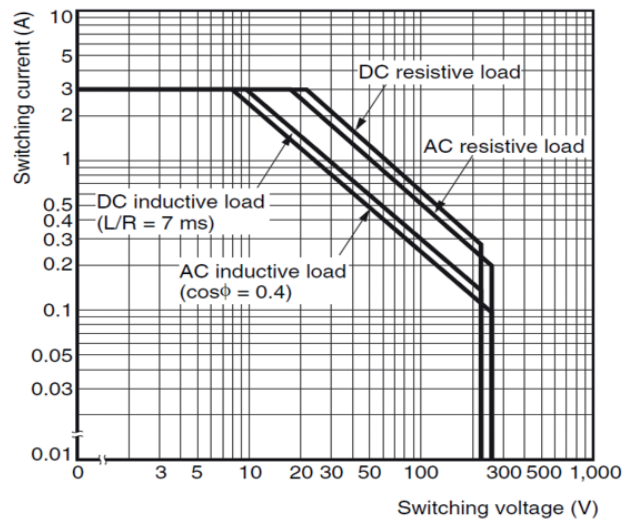
Housing: Panel mounted, 96x96 mm, depth 60 mm
Degree of protection front IP 65, backside IP 20

Retention of meter readings in case of power failure: in integrated, non-volatile memory

Electrical connection: Plug-in terminals

Ambient temperature: -20...+80 °C

Diagram



* x = 'Z' or 'E'



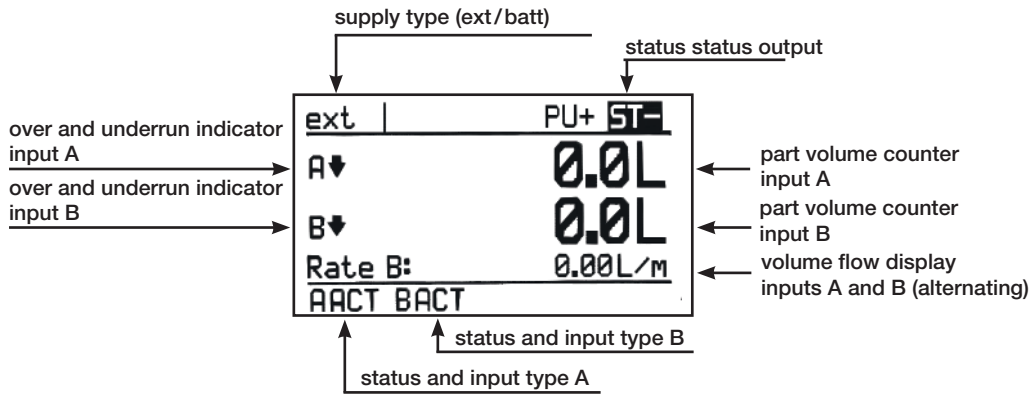
Instrument / Functions overview ZOK...

Function	Z1P	Z1K	Z2P	Z2K	Z3P	Z3K	E1K	E3K
Dual Counter	X	X			X	X	X	X
Dosing function			X	X				
Controller function					X	X		X
Certification								
ATEX Certification							X	X
Power supply								
DC-Supply	X	X	X	X	X	X	X	X
AC-Supply	X		X		X			
Battery operation		X				X	X	X
4-20 mA Loop						X		X
Sensor supply (only with external power supply)								
Sensor supply	8 V/ 24 V	8 V	8 V/ 24 V	8 V	8 V/ 24 V	8 V	8 V	8 V
Electrical outputs (only with external supply)								
Relay outputs			X	X	X			
Transistor outputs				X		X		
Analogue outputs					3L	2L/ 3L		2L/ 3L
Pulse outputs					X	X		
LCD display								
Selectable units	X	X	X	X	X	X	X	X
Decimal point	X	X	X	X	X	X	X	X
Accumulative total	X	X	X	X	X	X	X	X
Resettable total	X	X	X	X	X	X	X	X
Linearisation					X	X		X
Rate display	X	X	X	X	X	X		X
Backlighting	X	X	X	X	X	X		X

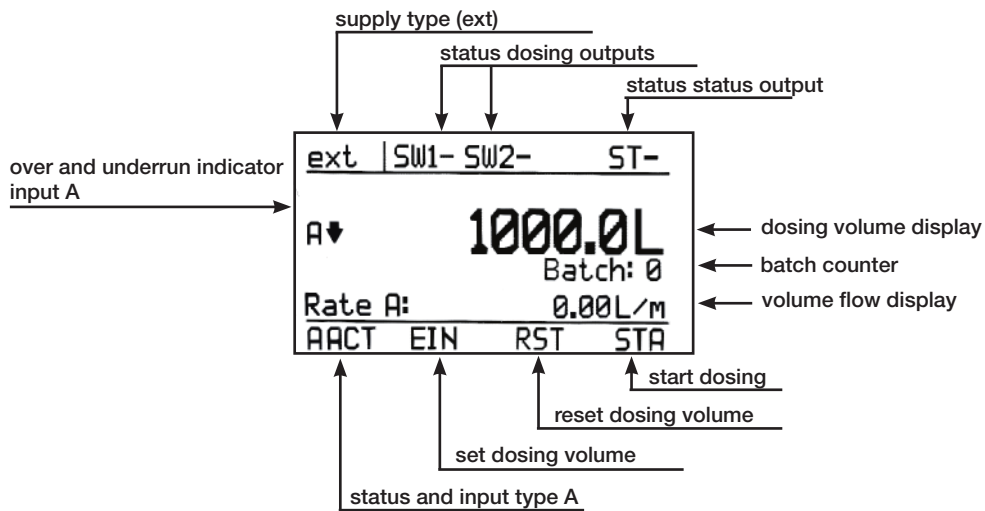


Display

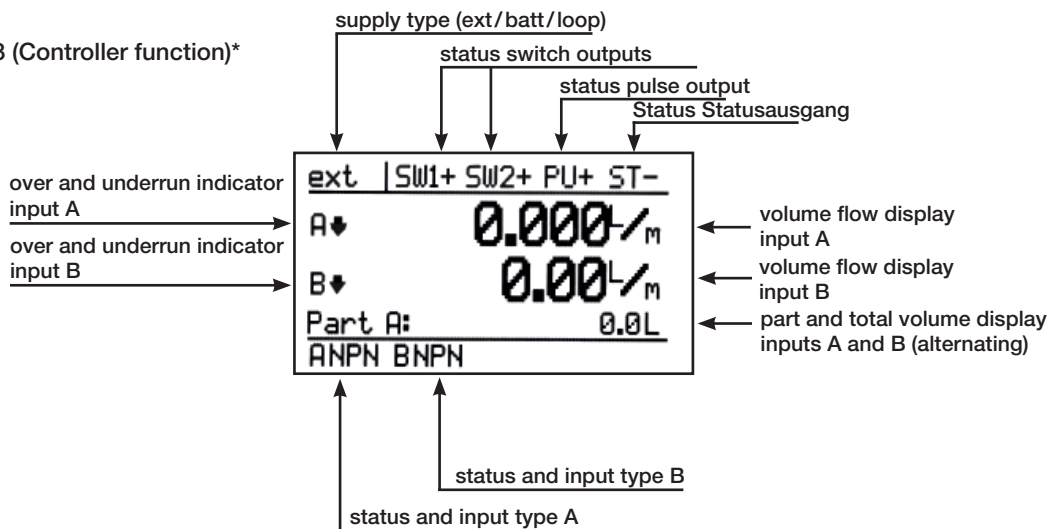
ZOK-x1 (Dual Counter)*



ZOK-Z2 (Dosing unit)



ZOK-x3 (Controller function)*



* x = 'Z' or 'E'



Order Details (Example: ZOK-Z1 K M F 3 0 0)

Model	Electronics	Housing Type	Electrical connection/ Cable gland	Input	Power supply	Options	Special
ZOK-	<p>Z1 = dual totaliser LCD</p> <p>Z2 = dosing unit LCD</p> <p>Z3 = rate totaliser LCD, 4-20 mA</p> <p>E1 = as Z1 with ATEX approval (in preparation)</p> <p>E3 = as Z3 with ATEX approval (in preparation)</p>	<p>K = universal mount (standard, round plastic with holder plates)</p> <p>M = universal mount (round plastic for retrofitting DON)</p> <p>P¹⁾ = panel mount 96x96</p> <p>F⁵⁾ = field housing</p>	<p>M³⁾ = 3 x M20 x 1.5 cable entry</p> <p>2³⁾ = 3 x 1/2" NPT cable entry</p> <p>K²⁾ = terminal on the back</p>	<p>F = Pulse/frequency input</p>	<p>3⁴⁾ = 8...24 V_{DC}, battery</p> <p>0²⁾ = 85...250 V_{AC}</p>	<p>0 = without</p> <p>R⁶⁾ = 2 relays</p>	<p>0 = without</p> <p>Y = Special (please specify in clear text)</p>

¹⁾ not for ZOK-E1 and ZOK-E3

²⁾ only for housing ZOK-ZxP and ZOK-ZxF

³⁾ only for housing ZOK-xxK, ZOK-xxM and ZOK-xxF

⁴⁾ battery operation only for housing ZOK-xxK, ZOK-xxM

⁵⁾ in preparation (not for ZOK-E1 and ZOK-E3)

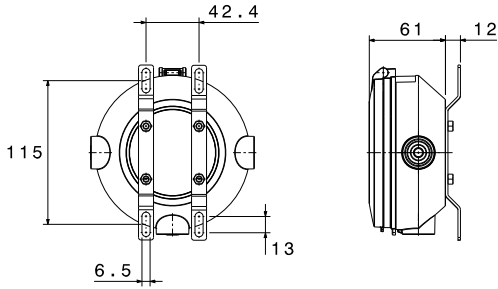
⁶⁾ standard for ZOK-xxP, optional for ZOK-ZxK and ZOK-ZxM... No battery operation available with relays

Accessories

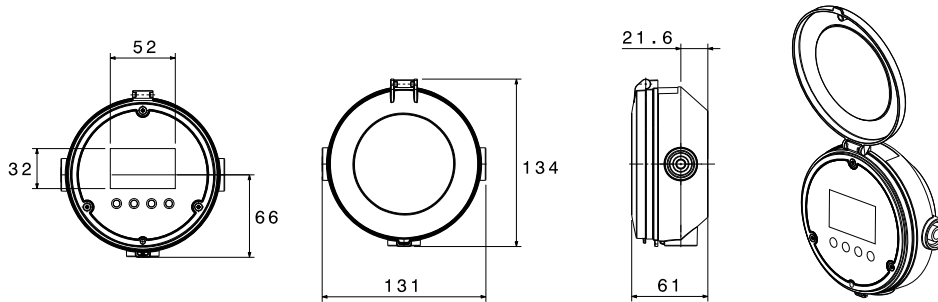
Description	Model
Stainless steel wall mounting kit	ERS-ZOK-023618
Stainless steel 2" pipe mounting kit	ERS-ZOK-003402
Cooling fin for high temperature flowmeter	ERS-ZOK-023619

Dimensions

ZOK-ZxK



ZOK-Ex/-Zx



ZOK-ZxP

