



Metering and Monitoring Electronics

Frequency Input



measuring
•
monitoring
•
analysing

ZOD



- LC-Display up to 8 digits
- Frequency input (reed switch, open collector, Namur etc.)
- High and low rate alarms
- Analogue output
- Sensor supply
- Free scaling
- Universal housing or panel mounting



Z2

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Description ZOD-Z1

The ZOD-Z1 programmable self powered totaliser is specifically designed for computing and displaying totals from flowmeters or machinery with frequency, sine wave or pulse outputs.

The instrument simultaneously displays resettable (batch) total and acumulative total in engineering units as programmed by the user. Ultra low power consumption is a result of innovative design which provides as much as 10 years of service from the replaceable 3.6 V lithium battery. The ZOD-Z1 may also be externally powered by 8...24 V_{DC}.

The pulse output can be set as either a scaled or un-scaled pulse and is NPN/PNP selectable. The un-scaled pulse serves as a frequency amplifier for turbine or paddle wheel style flowmeters.

The ZOD-Z1 has following significant Characteristics:

- Self powered, 8 digit LCD cumulative totaliser and large 5 digit resettable totaliser
- Robust field or meter mountable housing with protection cover
- Simple programming
- PIN protected programming
- Accepts universal pulse inputs
- IP66/67 Weatherproof
- Long battery life
- Reverse polarity protection
- Display backlighting option
- Pre-amplified pulse
- Scaleable pulse output

Technical Data

Display:	alphanumeric LCD characters
Resettable total:	5 digit x 7.5 mm high, program-mable to 3 decimal places
Accumulated total:	8 digit x 3.6 mm high, program-mable to 3 decimal places
Engineering units displayed:	litres, Mlitres, gallons, Mgallons, m ³ , lbs, kg or no engineering units displayed
Input types:	reed switch, open collector, coil (15mV P~P min.), voltage, current, namur and other proximities
Max. input frequencies:	coil 5,000 Hz, hall /current pulse 2,500 Hz, voltage pulse 2,000 Hz, namur 500 Hz
Input scaling range:	0.001 ... 9,999,999.999 with 3 floating decimal points
Pulse outputs:	NPN/PNP selectable, non-scaleable (5 KHz max.) or scale-able (8 Hz max.). The scaleable pulse output has a pulse width of 60 msec
Operating temperature:	-20 ... +80 °C, higher /lower temperature on request
Power source:	1 x 3.6 V lithium battery, can last to 10 years
External voltage supply:	8 ... 24 V _{DC} (drives output and backlighting)
Enclosure:	IP66/67 glass reinforced nylon, 175 g
Electrical connection:	cable gland supplied (suits 3 ... 6 mm Ø cables)
Mounting:	meter mount, wall, surface, pipe or panel mount

Order Details (Example: ZOD-Z1 KS 0 F3 0 0)

Model	Housing Type	Electrical connection/ Cable gland	Supply Voltage	Options	Mechanical protection
ZOD-Z1...	KS = universal mount (standard) KM* = integral mount	0 = cable gland supplied (suits 3...6 mm Ø cables)	F3 = 8...24 V _{DC} , Battery	0 = without	0 = without

*order only when retrofitting a pulse meter

Full LCD display test feature illuminates all characters and script text displays for 5 seconds when entering the program mode.



The 5 digit **Total** display is front panel resettable and can be programmed for up to 3 decimal places.

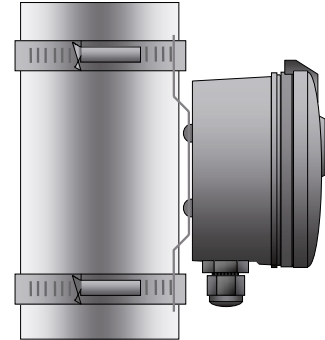
Engineering units are selected during the initial programming routine.

Battery condition indicator shows only when battery is low, battery life can last up to 7-10 years.

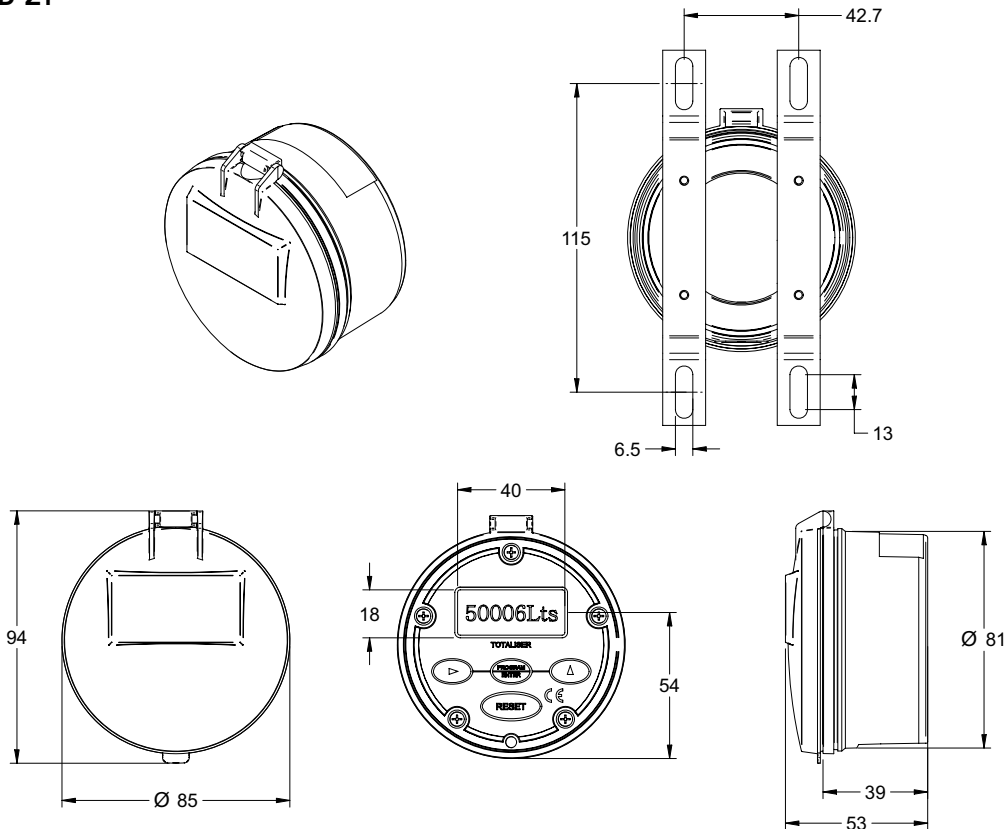
The 8 digit **Accumulative Total** display can be programmed for up to 3 decimal places. Reset is only possible when in the program mode which can be PIN protected for security.

Pipe mounting (ERS-ZOD-1522002)

ERS-ZOD-1522002 adaptor pipe mount kit is suitable for vertical or horizontal pipes



Dimensions ZOD-Z1



Optional adaptors for ZOD (universal mount)

This adaptors can be used with all ZOD-Models.

ERS-ZOD-1522001	stainless steel wall mount kit
ERS-ZOD-1522002	stainless steel 2" pipe mount kit
ERS-ZOD-1502015	cooling fin for high temp. flowmeters (+80 °C ... +120 °C)



Description ZOD-Z3

The ZOD-Z3 is a fully programmable self powered flow rate totaliser specifically designed for computing and displaying flow rates and totals from flowmeters or machinery with frequency, sine wave or pulse outputs.

The instrument displays instantaneous flow rate, resettable (batch) total and a cumulative total in engineering units as programmed by the user.

The integral 3.6 V replaceable lithium battery supports the rate and total displays and provides as much as 10 years of service.

An unscaled pulse output serves as an input signal amplifier ideally suited for coil type inputs from turbine or paddle wheel meters. The output can be transmitted over long distances and is NPN/PNP selectable (current sinking or current sourcing).

Alternatively a scaleable pulse output is available which is NPN/PNP selectable to facilitate input to any variety of PLC, counter or to drive a relay.

The ZOD-Z3 also has low and high flow alarms, 4...20 mA output, 10 point linearisation of flow input and the capability of adding, subtracting or ratioing of two separate flow inputs. Simple PIN protected flow chart programming with English prompts guide you through the programming routine, greatly reducing the need to refer to the instruction manual.

The ZOD-Z3 has following significant Characteristics:

- Self or external powered, 8 digit LCD resettable and cumulative totaliser, 5 digit rate display
- Robust IP66/67 universal mount or DIN panel mount version
- Simple programming
- PIN protected programming
- Scaleable flow inputs
- Multipoint linearity correction
- Long battery life
- Non volatile memory
- Low frequency cutoff
- Dual flow inputs (A + B, A - B, A ÷ B)
- Scaleable pulse output
- Pre-amplified pulse
- 4...20 mA (Loop Powered)
- High and low flow rate alarms

Technical Data

Display:	9 mm high alphanumeric LCD characters and subscripts
Instantaneous flow rate:	5 digit to 3 decimal places, units/sec., /min, /hr or /day
Reset and accumulated totals:	8 digit, programmable to 3 decimal places
Engineering units displayed:	litres, gallons, m ³ , lbs, kg or no english units displayed
Input types (pulse and frequency):	reed switch, open collector, coil (15 mV P~P min.), namur and other proximities, voltage and current pulses
Dual inputs (A and B):	A + B, A - B or A ÷ B (ratio)
Input frequency range:	0.1 Hz to 10,000 Hz (with programmable low frequency cut-off)
Input scaling range:	0.001 ... 9,999,999.999 with 3 floating decimal points
Linearisation:	10 point correction, best under external power
Operation temperature:	-20 ... +80 °C, higher/lower on request
Power source:	one 3.6 V lithium battery, 8 ... 24 V _{DC} external source and/or 4 ... 20 mA loop powered (passive)
PP version:	95 ... 260 V _{AC} (DIN panel mount)
Rate outputs:	4 ... 20 mA into 750 Ω at 24 V _{DC} , resolution 0.25% of span, low and high flow alarms (NPN/PNP solid state and relay options)
Pulse outputs:	NPN/PNP selectable, non-scaleable (10 Khz max.) or scaleable (50 Hz max.), auto-ranging pulse width: 1,000 ÷ (Hz x 2) = msec, max. 300msec, 1A max.
Enclosure:	IP66/67 glass reinforced nylon
Mounting:	meter mount, wall, surface, pipe or panel mount
Relays:	2 x SPDT, max. 250 V _{AC} /5 A / 70 V _{DC} , programmable (standard for ZOD-Z3P...); 2 x SPDT, max. 250 V _{AC} /5 A / 30 V _{DC} for N/O max. 250 V _{AC} /2A/30 V _{DC} , for N/C (option for ZOD-Z3K, replaces solid state outputs)
ATEX-approval (option E):	⊕ II 2G EEx ia IIB T4 (-20 °C ≤ Ta ≤ +60 °C)



Full LCD display test feature illuminates all display segments and script text displays for 5 seconds when entering the program mode.



The 8 digit **Total** display is push button or remote resettable and can be programmed for up to 3 decimal places.

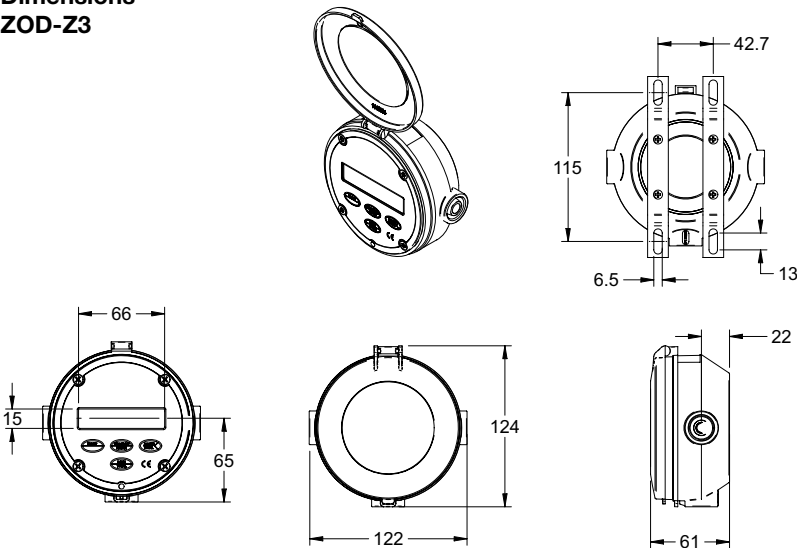


Rate display has flashing SEC, MIN, HR or DAY followed by up to 5 digits of rate programmable for up to 3 "floating" decimal places.

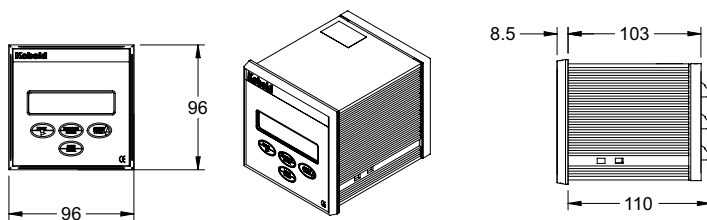


The 8 digit **Accumulative Total** display can be programmed for up to 3 decimal places. Reset is only possible when in the program mode which can be PIN protected for security.

Dimensions ZOD-Z3

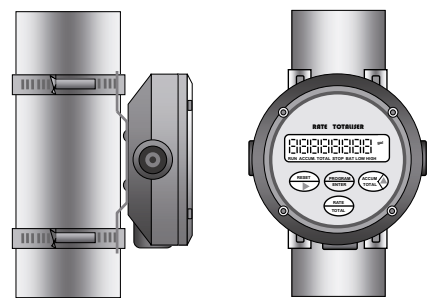


cutout dimensions 91 x 91 mm



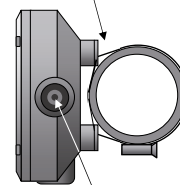
Pipe mounting

Vertical pipe mount*



* Pipe mount kit ERS-ZOD-152202 comprising two brackets, screw and worm drive clamps.

Horizontal pipe mount*



Conduit entries have an integral moulded seal, to remove break seal out using.

Order Details (Example: ZOD-Z3 KS 1 F3 R 0)

Model	Housing Type	Electrical connection/ Cable gland	Supply Voltage	Options	Mechanical protection
ZOD-Z3...	KS = universal mount (standard) KM* = integral mount	1 = 3 x cable entry M20 2 = 3 x cable entry 1/2" NPT	F3 = 8...24 V _{DC} , Battery F1** = 110 V _{AC} , 8...24 V _{DC} F0** = 220 V _{AC} , 8...24 V _{DC}	0 = without R*** = 2 x Relay E*** = ATEX EExia II B T4 C*** = IECEx EExia II B T4	0 = without
	PP = panel mount (IP20)	0** = screw terminal			S** = silicone bezel boot

* order only when retrofitting a pulse meter

** only possible with ZOD-Z3PP...

*** only possible with ZOD-Z3K... Options "R", "E" and "C" cannot be combined.



Description ZOD-Z7

The ZOD-Z7 battery powered flow rate totaliser is specifically designed for computing and displaying flow rates and totals from flowmeters with pulse, sine wave or frequency outputs. The instrument displays resettable (batch) total, cumulative total and instantaneous flow rate in engineering units as programmed by the user. Designed for the more rugged applications in mines sites and mobile installations, the ZOD-Z7 LCD display has a backlight panel and large digits for distance viewing at night.

Options:

- Heavy duty facia protector shield
- Relay board with SPDT outputs
- Flowmeter and pipe mount kits

The ZOD-Z7 has following significant Characteristics:

- Battery or external powered, 6 digit large LCD total and 8 digit cumulative totaliser, 5 digit rate display
- Robust IP65 aluminum field and panel mountable housing
- Simple flow chart touch key programming
- Scaleable universal pulse or frequency inputs
- LCD Backlighting standard
- PIN protected programming
- Scaled pulse output
- Long battery life
- Non volatile memory
- Reverse polarity protection

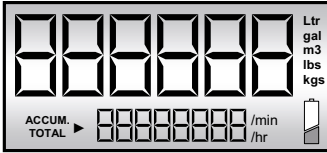
Technical Data

Display:	two lines of LCD display with subscripts and icons
Instantaneous flow rate:	5 digit to 3 decimal places units/sec., /min, /hr or /day
Resettable total:	6 resettable digits 17 mm high, 3 decimal places maximum
Accumulated total:	8 digit 7 mm high, program-mable to 3 decimal places
Engineering units displayed:	litres, gallons, m ³ , lbs, kg or no english units displayed
Input types (pulse and frequency):	reed switch, open collector, coil (15 mV P-P min.), namur and other proximities
Input frequency range:	0.1 Hz ... 5,000 Hz (with progam-mable low frequency cut-off)
Input scaling range:	0.001 ... 99,999.999 (scale or K-factor)
Backlighting:	illuminates only with 8 ... 24 V _{DC} external power applied
Pulse output (NPN):	scaled pulse matches whole number of display (pulse width mirrors pre-scaled incoming pulses)
Operating temperature:	-20 ... +80°C, higher tempera-ture on request
Power source:	one 3.6 V lithium battery and/ or 8 ... 24 V _{DC} external source
Options:	facia proctor, 3 mm clear polycarbonate plate with opera-tor access aperture. relay out put board (provides contact closure)
Enclosure:	IP65 powder coated aluminum
Mounting flexibility:	meter and stem mount, wall, surface, pipe or panel mount

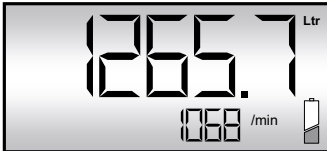
Order Details (Example: ZOD-Z7 KS 1 F3 R 0)

Model	Housing Type	Electrical connection/ Cable gland	Supply Voltage	Options	Mechanical protection
ZOD-Z7...	KS = universal mount (standard) KM* = integral mount	3 = 3 x cable entry M16	F3 = 8...24 V _{DC} , Battery	0 = without	0 = without P = display protection plate

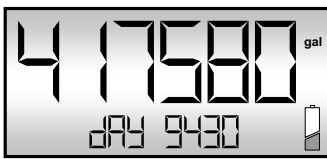
* order only when retrofitting a pulse meter



Full LCD display test feature illuminates all display segments and script text displays for 5 seconds when entering the program mode.



Resetable Total This large 6 digit display can be programmed for up to 3 decimal places.



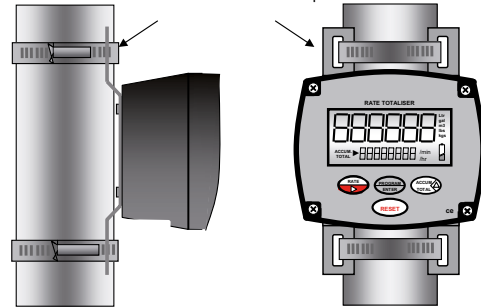
Accumulative Total The 8 digit display can be programmed for up to 3 decimal places. Reset is only possible when in the program mode which can be PIN protected for security.

Rate display Rate is displayed with a flashing time base of either /sec, /min, /hr or day followed by up to 5 digits of rate, these are programmable for up to 3 "floating" decimal places. Time bases of units /sec and units /day are displayed to the left of the digital display whilst units /min and /hr are to the right of the rate digits as shown.

Backlighting The LCD backlight feature will only work from an external dc power source in the range of 8...24 V_{DC}.

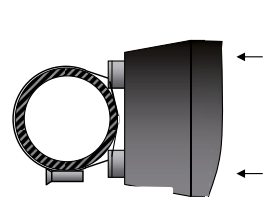
Pipe mounting (optional: ERS-ZOD-1522002)

Comprising two brackets, screws and worm drive clamps

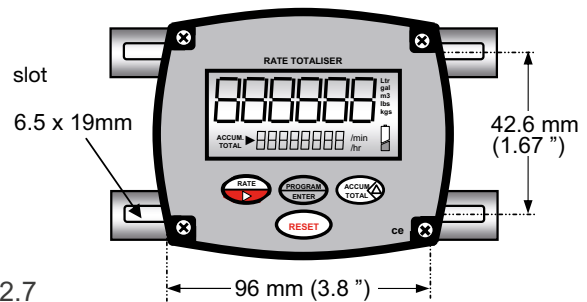


Horizontal

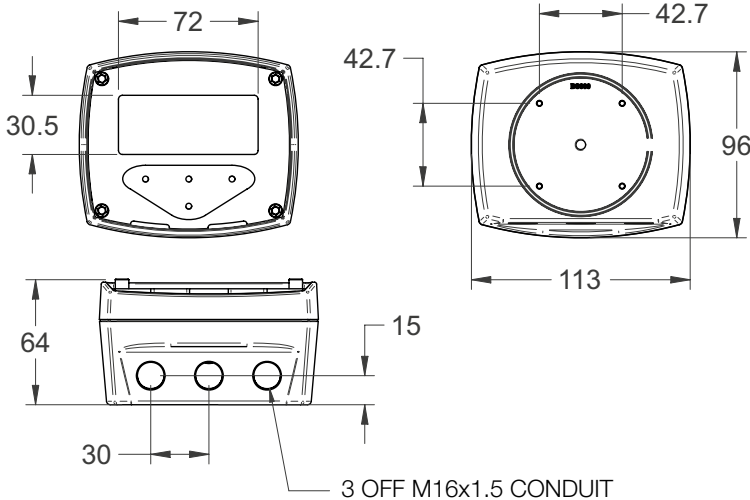
Optional facia protector, 3 mm clear polycarbonate plate with access port to keys, option "P".



Wall mount bracket (optional: ERS-ZOD-1522001)



Dimensions ZOD-Z7





Description ZOD-B1

The ZOD-B1 is a fully programmable high speed batch controller specifically designed to operate with common pulse producing flowmeters such as positive displacement, turbine, mass, vortex or magnetic style.

The instrument displays batch value, batch progress and cumulative total in engineering units as programmed by the user, it also logs the total number of batches performed and total volume dispensed.

ZOD-B1 scrolls messages to prompt the user at each stage of operation. Batch limiting and no-flow detection are "safeguards" against erroneously high batch entries, loss of the flow input signal or control valve or pump failure.

Two independent outputs can be programmed to provide stepped control at the start and/or end of each batch.

DC powered models have two solid state control outputs, ZOD-B1P models can be AC or DC powered and have two single pole double throw (SPDT) control 5 A relays.

An Automatic Overrun Compensation feature corrects for any batch errors attributed to slow closing valves or flow rate variations.

As many as 9 ZOD-B1 controllers may be networked together, typical applications are where one liquid is being dispensed to a number of outlets or a number of different liquids are being batched via one common flowmeter. ZOD-B1 will also take an "inhibit start" signal from other control or plant equipment.

The ZOD-B1 has following significant Characteristics:

- Large 8 digit batch and cumulative total LCD
- Robust IP66/67 universal mount or panel mount version
- Simple programming
- PIN protected programming
- Scaleable flow inputs
- Two stage control
- Automatic overrun compensation
- Missing pulse (no flow) alarm
- Maximum batch size limiting
- Non volatile memory
- Multiple batcher interlock function
- Remote Run, Stop, batch set, etc.

Technical Data

Display:	9 mm high alphanumeric LCD characters and subscripts
Batch and accumulated totals:	8 digit, programmable to 3 decimal places
Engineering units displayed:	litres, gallons, m ³ , lbs, kg or no english units displayed
Input types (pulse and frequency):	reed switch, open collector, coil (15 mV P~P min.), current, voltage, namur and other proximities. Max. frequency 10,000 Hz
Input scaling range:	0.001 ... 9,999,999.999 with 3 floating decimal points
Control outputs: (field mount):	two 1A NPN open collectors, 24 V _{DC} max.
(panel mount):	two SPDT 5 A relays (with DIN versions)
Alarm output (no flow alarm):	1 A open collector (NPN/PNP selectable), 24 V _{DC} max.
Operation temperature:	-20... +80 °C, higher/lower temperature on request
Power requirements: (PP version):	12 ... 24 V _{DC} , 50 mA, 95 ... 260 V _{AC} (DIN panel mount)
Status interlocks:	Batch status output, batch inhibit input, network looping
Enclosure (two styles):	IP66/67 field mount or DIN panel mount
Mounting:	meter mount, wall, surface, pipe or panel mount
Batching systems example:	ZOD-B1 with flowmeter and control valve e.g.: DOB system 1 ... 70 l/min, 10 bar, 90 °C
Relays:	2 x SPDT, max. 250 V _{AC} /5 A/70 V _{DC} , programmable (standard for ZOD-B1P...); 2 x SPDT, max. 250 V _{AC} /5 A/30 V _{DC} for N/O max. 250 V _{AC} /2A/30 V _{DC} , for N/C (option for ZOD-B1K, replaces solid state outputs)

Order Details (Example: ZOD-B1 KS 1 F3 00)

Model	Housing Type	Electrical connection/ Cable gland	Supply Voltage	Options	Mechanical protection
ZOD-B1	KS = universal mount (standard) KM* = integral mount	1 = 3 x cable entry M20 2 = 3 x cable entry 1/2" NPT	F3 = 8...24 V _{DC} , Battery F1** = 110 V _{AC} , 8...24 V _{DC} F0** = 220 V _{AC} , 8...24 V _{DC}	0 = without R = 2 x Relay (for ZOD-B1K)	0 = without S* = silicone bezel boot
	PP = panel mount (IP20)	0** = screw terminal			

* order only when retrofitting a pulse meter
** only possible with ZOD-B1PP...



Full LCD display test feature illuminates all display segments and script text displays for 5 seconds when entering the program mode.



An 5 digit **TNB** display shows the Total number of batches dispensed since last reset (reset of TNB and Accumulative Total is only possible whilst in the program mode).

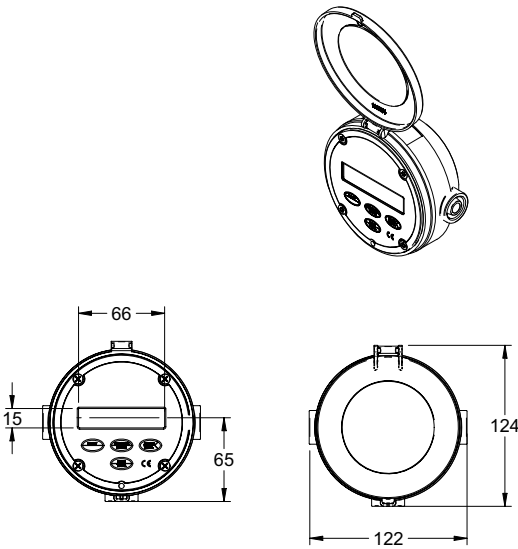


Up to 8 digits of **Batch** quantity programmable for up to 3 decimal places. English prompts clearly show the status of the batch.

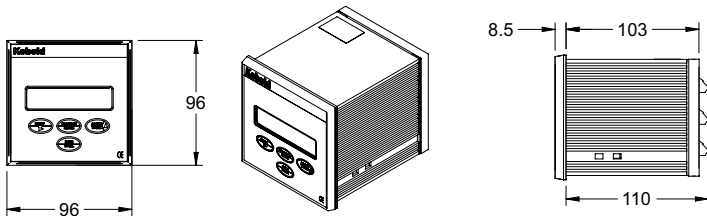


The 8 digit **Accumulative Total** display can be programmed for up to 3 decimal places. Reset is only possible when in the program mode which can be PIN protected for security.

Dimensions ZOD-B1

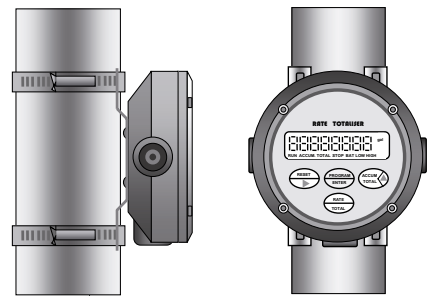


cutout dimensions 91 x 91 mm



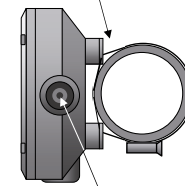
Pipe mounting

Vertical pipe mount*



* Pipe mount kit ERS-ZOD-152202 comprising two brackets, screw and worm drive clamps.

Horizontal pipe mount*



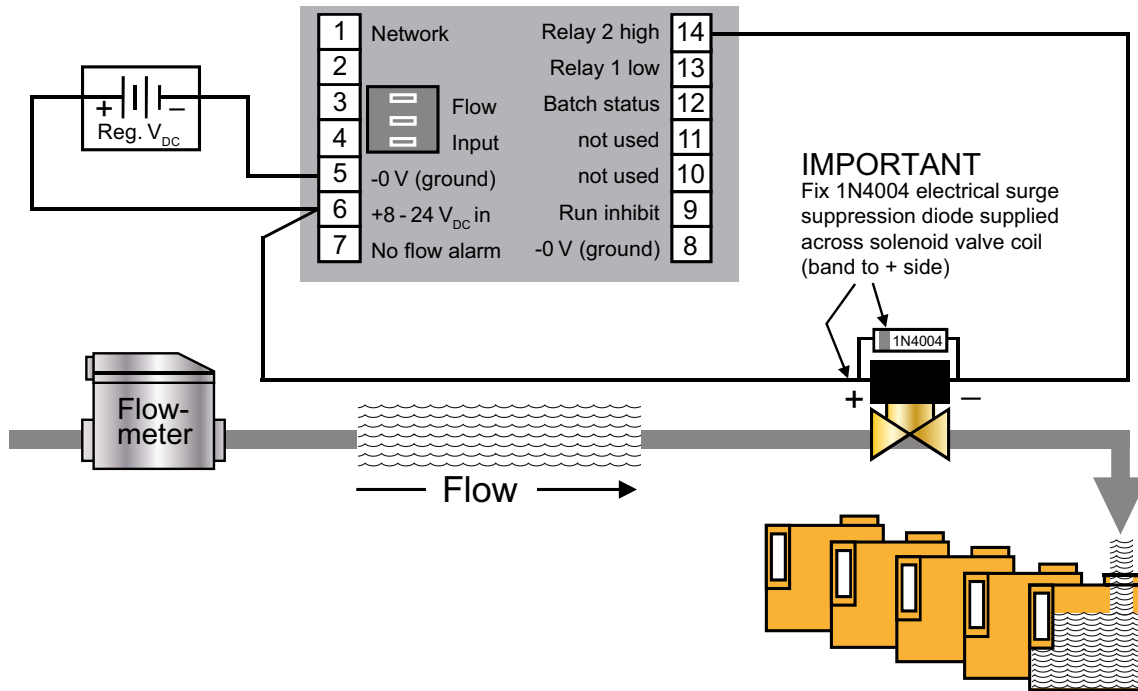
Conduit entries have an integral moulded seal, to remove break seal out using.

Optional adaptors for ZOD (universal mount)

This adaptors can be used with all ZOD-Models.

ERS-ZOD-1522001	stainless steel wall mount kit
ERS-ZOD-1522002	stainless steel 2" pipe mount kit
ERS-ZOD-1502015	cooling fin for high temp. flowmeters (+80 °C... +120 °C)

Single Stage Control



Two Stage Control

