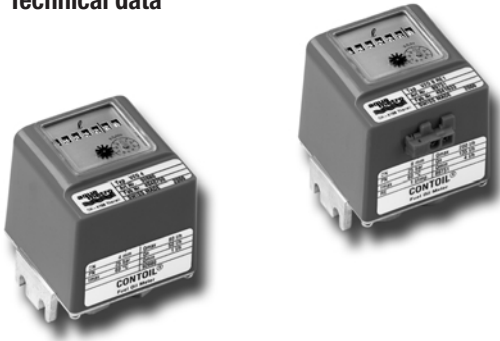


2. VZO 4 ... 50 (Classic)

2.1

VZO 4 and 8

Technical data ¹⁾



- oil meter with inside thread connections located on the bottom plate
- with mechanical roller counter, volume display in litres
- meters in US-Gallons ²⁾
- for mounting in horizontal, vertical an inclined positions

Option: Reed pulser 48 V

Type		VZO 4	VZO 4	VZO 8
		Q _{min} 0,5		
Nominal diameter	mm	4	4	8
	inch	1/8	1/8	1/4
Connection threads of meter	inch	1/8	1/8	1/4
Nominal pressure		bar 25		
temperature	°C	60		
Maximum flow rate	Q _{max} ³⁾	I/h 40	80	200
Nominal flow rate	Q_n ³⁾	I/h 25	50	135
Minimal flow rate	Q _{min} ⁴⁾	I/h 0,5	1	4
Approx. starting flow rate		I/h 0,3	0,4	1,6
Measurement error limit		± 1% of actual value ⁴⁾		
Repeatability		± 0,2%		
Digital flow rate display	l	0,001	0,001	0,01
Registration capacity	m ³	100	100	1000
Registration at Q _n before return to zero	h	4 000	2 000	7 400
Safety filter mesh width	mm	0,125	0,125	0,150
Dirt trap mesh width	mm	0,080	0,080	0,100
Volume of the measuring chamber	cm ³	5	5	12,5
Weight without couplings	ca. kg	0,65	0,65	0,75
Reed pulsers	RE 1 RE 0,1 RE 0,01 RE 0,00125 RE 0,00311	I/Impuls	– – 0,1 0,01 0,00125 –	1 0,1 – – 0,00311
Pulse frequency for	RE 0,00125	at Q _{max} at Q _{min}	Hz Hz	– 17,777 0,222 –
Pulse frequency for	RE 0,00311	at Q _{max} at Q _{min}	Hz Hz	– – 17,864 0,357

1) Manufacturer's specification, valid for the following reference condition: EL heating fuel / diesel at 20°C.

2) 1 US gallon corresponds to 3.785 litres

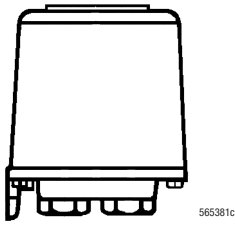
3) For burners and engines or motors, the meter must basically be selected for permanent flow. For higher viscosity, or if the meter is installed on the suction side, the pressure drop and any reduction in the measuring range must also be considered; see Chapters 5 and 8.

4) Accuracy limits: VZO 4 Q_{min} 0,5; 0,5 l/h ... 2 l/h = + 1% / - 2%. VZO 4: 1 l/h ... 2 l/h = + 1% / - 2%.

Pressure drop curves

in chapter 5

Dimensions in mm



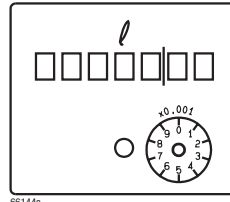
height = 79
width = 65
depth = 65

565381c

Detailed dimensional drawings in chapter 5

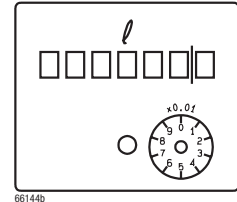
Dial

VZO 4



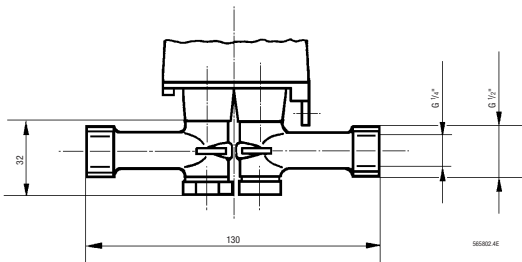
66144a

VZO 8



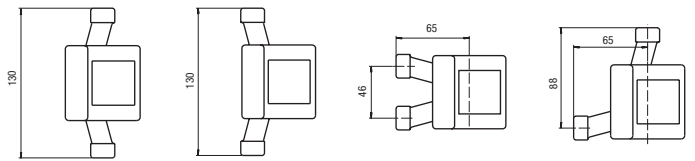
66144b

Mounting Kit for VZO 8



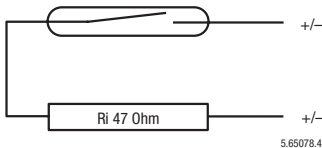
560824E

Order No. 81130: some possible mounting positions



AM08223.4

RE Pulsers



5.85078.4

Switching element:
Switching voltage:
Switching current:
Static current:
Switching power:
ON-time:

Temperature:
Protection:
Connection:

- Reed switch with dry contact (inert gas)
- Max. 48 V AC/DC
- Max. 50 mA
- Open Contact
- Max. 3 VA
- 30 ... 70% (pulse value 1/0, 1/0,01 I/Imp.)
- 40 ... 55% (pulse value 0,00125/0,00311 I/Imp.)
- Ambient -10 ... +60 °C
- IP 65 (IEC 144) against water-jets and dust
- On plug supplied with product for cable, 2 x 0,35 mm²

Ordering specifications

Type	Order No.	Type	Order No.
VZO 4	92680	VZO 8	92630
VZO 4 RE 0,00125	89763	VZO 8 RE 0,00311	89733
VZO 4 RE 0,01	89760	VZO 8 RE 0,1	89730
VZO 4 RE 0,1	89761	VZO 8 RE 1	89731
VZO 4 Q _{min} 0,5	92678		

2.2

VZO 4 and 8 OEM

Technical data ¹⁾



- fuel oil meters for OEM's (original equipment manufacturers), to be mounted under the burner cover
- meters with internal threaded connection, positioned laterally
- with 230V Reed pulser to display measurement values on remote totaliser or on burner control unit
- for mounting in horizontal, vertical or inclined positions

Type		VZO 4 OEM	VZO 8 OEM
Nominal diameter	mm	4	8
	inch	1/8	1/4
Connection threads of meter		inch	1/8
Nominal pressure		bar	32
Temperature		°C	60
Maximum flow rate	Q _{max} ²⁾	l/h	80
Nominal flow rate	Q_n ²⁾	l/h	50
Minimal flow rate	Q _{min} ³⁾	l/h	1
Approx. starting flow rate		l/h	0,4
Measurement error limit		± 1% of actual value ³⁾	
Repeatability		± 0,2%	
Safety filter mesh width	mm	0,125	0,150
Dirt trap mesh width	mm	0,080	0,100
Volume of the measuring chamber		cm ³	5
Weight		ca. kg	0,65
Reed pulsers	RE	l/Impuls	0,005
Pulse frequency for	at Q _{max}	Hz	4,444
	at Q _{min}	Hz	0,056
			0,089

1) Manufacturer's specification, valid for the following reference condition: EL heating fuel / diesel at 20°C.

2) For burners and engines or motors, the meter must basically be selected for permanent flow. For higher viscosity, or if the meter is installed on the suction side, the pressure drop and any reduction in the measuring range must also be considered; see Chapters 5 and 8.

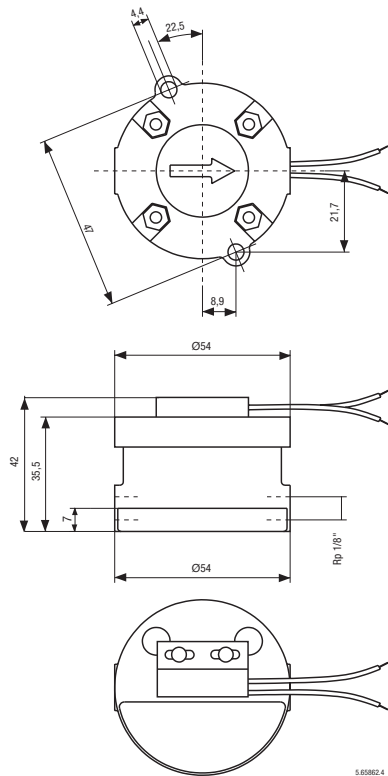
3) Accuracy limits: VZO 4 OEM: 1 l/h ... 2 l/h = + 1% / - 2%.

Pressure drop curves

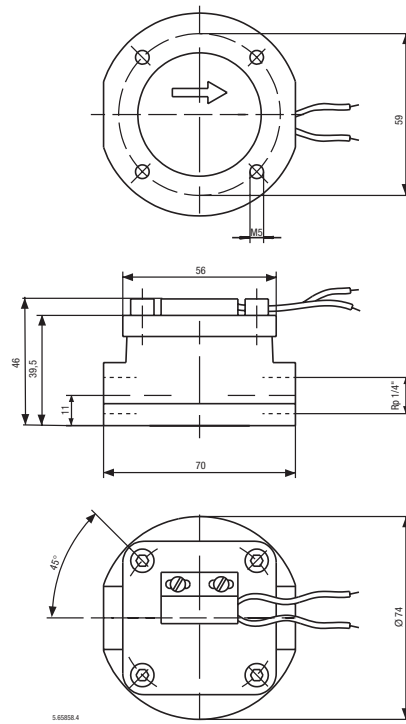
in chapter 5

Dimensions in mm

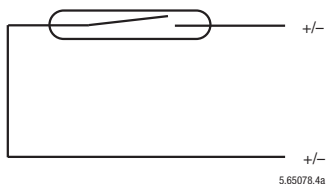
VZO 4 OEM



VZO 8 OEM



RE Pulsers



Switching element:
Switching voltage:
Switching current:
RStatic current:
Switching power:
ON-time:
Temperature:
Protection:
Connection:

- Reed switch with dry contact (inert gas)
- max. 230 V AC/DC
- max. 50 mA
- Open Contact
- max. 3 VA
- 40 ... 55 %
- Ambient -10 ... +60 °C
- IP 65 (IEC 144) against water-jets and dust
- Cable cross section 2 × 0,5 mm², length 480 mm

Remote totaliser for VZO 4 OEM



Power supply:
Pulse value (input):
Slowest readable amount:
Registration capacity:
Registration:
Panel cut-out:
Installation depth:

- 230 V, 50/60 Hz
- 0,005 l
- 0,005 l
- 10 000 l
- at Q_n before return to zero 200 h
- 27 × 14,4 – 0/+ 0,2 mm
- 56 mm

Ordering specifications

	Type	Description	Order No.
	VZO 4 OEM-RE 0,005	Version for OEM's Remote totaliser for VZO 4 OEM	89765 93349
	VZO 8 OEM-RE 0,00125	Version for OEM's	89771

2.3

VZO 15 ... 50

Technical data ¹⁾



- Volume display on roller register, in litres
- fuel oil meter with threaded or flanged ends
- for horizontal, vertical or inclined mounting

Option: Reed pulser or RV / IN pulser

Versions available on request:

- different flange drillings, such as ANSI, JIS
- meters in US Gallons ²⁾ (option)

Type		VZO 15	VZO 20	VZO 25	VZO 40	VZO 50	
Nominal diameter	DN	15	20	25	40	50	
	mm	1/2	3/4	1	1 1/2	2	
	inch						
Installation length		165	165	190	300	350	
Nominal pressure with threaded ends with flanges	PN	16					
	PN	25, 40					
Maximum temperature		130, 180					
Maximum flow rate	Q _{max} ³⁾	600	1500	3 000	9 000	30 000	
Nominal flow rate	Q_n ³⁾	400	1 000	2 000	6 000	20 000	
Minimal flow rate	Q _{min}	10	30	75	225	750	
Approx. starting flow rate		4	12	30	90	300	
Measurement error limit		± 1 % of actual value					
Repeatability		± 0,2 %					
Smallest readable amount	l	0,01	0,1	0,1	0,1	1	
Registration capacity	m ³	1 000	10 000	10 000	10 000	100 000	
Registration at Q _n before return to zero	h	2 500	10 000	5 000	1 667	5 000	
Safety filter mesh width	mm	0,400	0,400	0,400	0,800	0,800	
Dirt trap mesh width	mm	0,250	0,400	0,400	0,600	0,600	
Volume of the measuring chamber	cm ³	12	36	100	330	1 200	
Housing finish		enamelled red RAL 3013					
Weight with threaded ends ⁴⁾	ca. kg	2,2	2,5	4,2	17,3	–	
	with flanges PN 25	ca. kg	3,8	4,5	7,5	20,3	41,0
	with flanges PN 40	ca. kg	4,4	5,5	7,8	20,5	42,0
Pulse values of pulsers:							
	IN inductive according to DIN 19234	l/Impuls	0,01	0,01	0,1	0,1	1
	RV Reed	l/Impuls	0,1	1	1	1	10
	RV Reed	l/Impuls	1	–	–	10	100
Pulse frequency IN	at Q _{max}	Hz	16,667	41,667	8,333	25,000	8,333
	at Q _{min}	Hz	0,278	0,833	0,208	0,625	0,208

1) Manufacturer's specification, valid for the following reference condition: EL heating fuel / diesel at 20 °C.

2) 1 US gallon corresponds to 3.785 litres

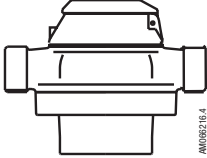
3) For burners and engines or motors, the meter must basically be selected for permanent flow. For higher viscosity, or if the meter is installed on the suction side, the pressure drop and any reduction in the measuring range must also be considered; see Chapters 5 and 8.

4) Weight without couplings.

Pressure drop curves

in chapter 5

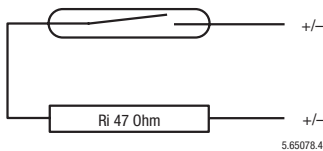
Dimensions in mm

	Meter	Length	Width	Height für Zähler VZO					
				VZO ... 130° C			VZO ... 180° C		
					-RV	-IN		-RV	-IN
				L	W	H	H	H	H
VZO 15	165	105	106	130	185	147	171	225	
VZO 20	165	105	115	139	194	156	180	234	
VZO 25	190	130	142	166	221	183	207	261	
VZO 40	300	210	235	259	273	235	259	313	
VZO 50	350	280	291	315	329	291	315	369	

Detailed dimensional drawings in chapter 5

RV Pulsers

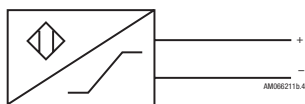
This pulser is integrated into the roller counter and is thus especially appropriate for remote totalisation. For other applications the use of the inductive pulser IN is preferable.



- Switching element:
- Reed switch with dry contact (inert gas)
- Switching voltage:
- max. 48 V AC/DC
- Switching current:
- max. 50 mA (Ri = 47 Ohm/0,5 W)
- Static current:
- Open Contact
- Switching power:
- max. 2 W
- ON-time:
- 50 % ± 10 %
- Temperature:
- Ambient -10 ... +70° C
- Protection:
- IP 65 (IEC 144) against water-jets and dust
- Connection:
- Cast-in cable, length 3 m
- Cable cross section:
- 2 × 0,14 mm²

IN Pulsers

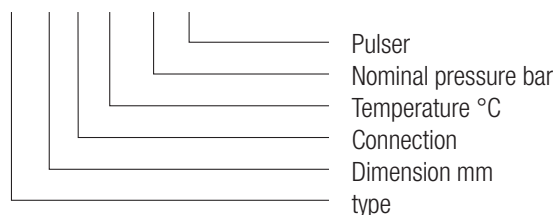
Pulser for industrial applications. Supplied with plug-in pulser sensor for use in hazardous area.



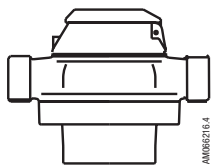
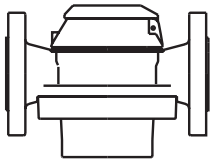
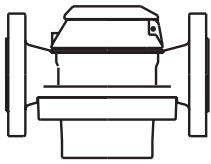
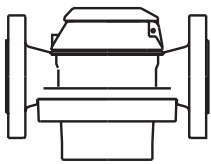
- Switching element:
- Slot initiator according to DIN 19234
- Switching voltage:
- 5 ... 15 V DC
- Residual rippel:
- max. 5 %
- Switching current:
- > 3 mA bei 8 V DC / 1 kOhm
- Static current:
- < 1 mA bei 8 V DC / 1 kOhm
- ON-time:
- 50 % ± 10 %
- Temperature:
- Ambient -10 ... +70° C
- Protection:
- IP 65 (IEC 144) against water-jets and dust
- Connection:
- Cable min. 2 × 0,35 mm² and outer cable diameter 4 ... 6 mm, with contact plug delivered with pulser.
- Ex approval:
- EEx ia IIC T6

Type designation key

VZO 25 FL 130/25-IN ...



Ordering specifications

Threaded ends 	Type VZO 15 RC 130/16 VZO 15 RC 130/16-RV 0,1 VZO 15 RC 130/16-RV 1 VZO 15 RC 130/16-IN 0,01 VZO 20 RC 130/16 VZO 20 RC 130/16-RV 1 VZO 20 RC 130/16-IN 0,01	Order No. 92041 92042 92043 91900 92047 92048 91902	Type VZO 25 RC 130/16 VZO 25 RC 130/16-RV 1 VZO 25 RC 130/16-IN 0,1 VZO 40 RC 130/16 VZO 40 RC 130/16-RV 1 VZO 40 RC 130/16-IN 0,1	Order No. 92057 92058 91913 92004 92018 91906
	Flanges 130° C / PN 25 	VZO 15 FL 130/25 VZO 15 FL 130/25-RV 0,1 VZO 15 FL 130/25-RV 1 VZO 15 FL 130/25-IN 0,01 VZO 20 FL 130/25 VZO 20 FL 130/25-RV 1 VZO 20 FL 130/25-IN 0,01 VZO 25 FL 130/25 VZO 25 FL 130/25-RV 1 VZO 25 FL 130/25-IN 0,1	92044 92045 92046 91910 92049 92050 91903 92059 92060 91914	VZO 40 FL 130/25 VZO 40 FL 130/25-RV 1 VZO 40 FL 130/25-IN 0,1 VZO 50 FL 130/25 VZO 50 FL 130/25-RV 10 VZO 50 FL 130/25-IN 1
Flanges 180° C / PN 25 	VZO 15 FL 180/25 VZO 15 FL 180/25-RV 0,1 VZO 15 FL 180/25-RV 1 VZO 15 FL 180/25-IN 0,01 VZO 20 FL 180/25 VZO 20 FL 180/25-RV 1 VZO 20 FL 180/25-IN 0,01 VZO 25 FL 180/25 VZO 25 FL 180/25-RV 1 VZO 25 FL 180/25-IN 0,1	92250 92251 92252 92253 92258 92259 92260 92264 92265 92266	VZO 40 FL 180/25 VZO 40 FL 180/25-RV 1 VZO 40 FL 180/25-IN 0,1 VZO 50 FL 180/25 VZO 50 FL 180/25-RV 10 VZO 50 FL 180/25-IN 1	92274 92275 92276 92280 92281 92282
Flanges 180° C / PN 40 	VZO 15 FL 180/40 VZO 15 FL 180/40-RV 0,1 VZO 15 FL 180/40-RV 1 VZO 15 FL 180/40-IN 0,01 VZO 20 FL 180/40 VZO 20 FL 180/40-RV 1 VZO 20 FL 180/40-IN 0,01 VZO 25 FL 180/40 VZO 25 FL 180/40-RV 1 VZO 25 FL 180/40-IN 0,1	92254 92255 92256 92257 92261 92262 92263 92267 92268 92269	VZO 40 FL 180/40 VZO 40 FL 180/40-RV 1 VZO 40 FL 180/40-IN 0,1 VZO 50 FL 180/40 VZO 50 FL 180/40-RV 10 VZO 50 FL 180/40-IN 1	92277 92278 92279 92283 92284 92285

DN 15 meters are not suitable for heavy fuel oil; this is only possible if special precautions are taken.