EMDE.Z
Zero Straight Run Electromagnetic Flowmeter





OVERVIEW

Description

Zero Straight Run Magnetic Flowmeter EMDE.Z allows for reliable measurement independent of flow profile and mounting location. EMDE.Z does not need any tube restrictions, inlet or outlet runs.

Application

- Water-Wastewater
- Chemical Processes
- Mechanical engineering systems

Features

- High accuracy
- Wide measuring range
- Integrated earthing terminal
- Suitable solution for water and wastewater applications
- Long lasting
- Self checking
- Economic
- Straight pipe distance - free measurement
- No inlet or outlet runs needed
- No tube restrictions ans pressure loss
- Suitable for installation in tight spaces

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OPERATING DATA

Medium Temperature Maximum

-20°C...+70°C (Hard Rubber)
-20°C...+120°C (PTFE)
-20°C...+180°C (PFA)

Ambient Temperature

-30°C... +70°C

Mounting Joint

Flanged DIN/ANSI/BS

Standard Pressure

PN6, PN10, PN16, PN40

Excitation Coil Insulation

E

Operating Principle

DC pulse

Enclosure

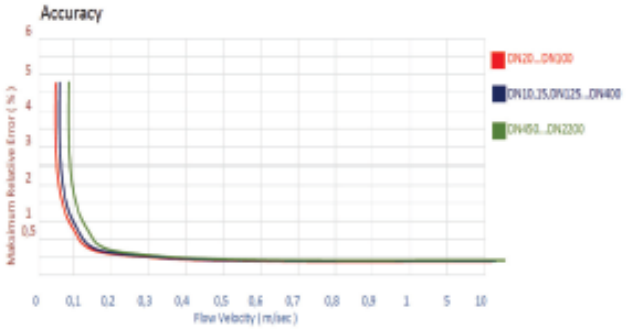
IP67 for EMDE-CM, IC, TR, / IP68 as optional IP68 for EMDE-RM

Special Design

Unit for explosion hazard environment-Zone 2

Accuracy

±0.5% of measured value, optionally ±0.2%



MEASURING RANGE

Pipe Size Range

DN10...DN3000

Flow Velocity

0,1-10 m/s

MATERIALS

Measuring Tube

Stainless steel

Sensor Cover

Carbon Steel
Stainless Steel (optional)

Flange

Carbon Steel
Stainless Steel (optional)

Sensing Electrode

Stainless Steel AISI316L / Titanium / Hastelloy-B / Hastelloy-C / Platinum / Tantalum / Nickel Alloy (optional)

Lining

Hard Rubber / Soft Rubber / PTFE / PE / Ceramic / PFA (optional)

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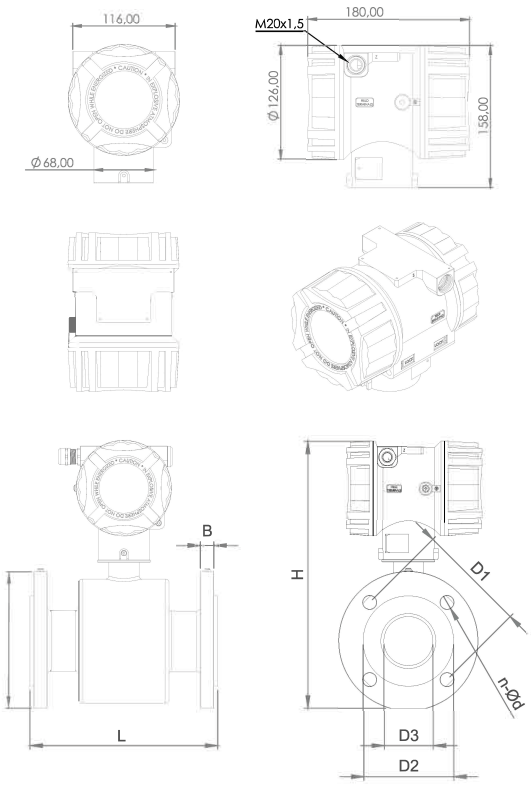
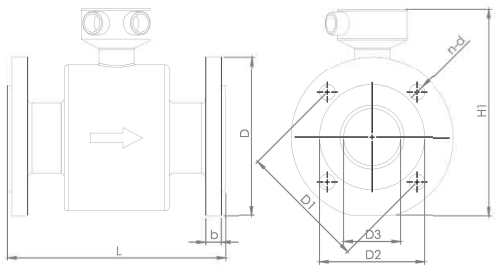
PRODUCT CLASSIFICATION

				
Compact / EMDE-CM	Remote / EMDE-RM	Battery-Powered /EMDE-BBT	Compact Infrared Controller / EMDE-IC	Transmitter / EMDE -TR

TECHNICAL DRAWING AND DIMENSIONS



EMDE-CM (Compact)



EMDE-RM (Remote)

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Diameter	Pressure Rating (Bar)	H	H1	L	D	D1	n-d	b
10-15	40	260-310	190-240	200	90-95	60-65	4xø14	14
20	40	315	245	200	105	75	4xø14	16
25	40	325	255	200	115	85	4xø14	16
32	40	325	255	200	140	100	4xø18	18
40	40	340	270	200	150	110	4xø18	18
50	40	355	285	200	165	125	4xø18	19
65	16	375	305	200	185	145	4xø18	20
80	16	385	315	200	200	160	8xø18	20
100	16	415	345	250	220	180	8xø18	22
	25	415	345	250	235	190	8xø22	24
125	16	445	375	250	250	210	8xø18	22
	25	445	375	250	270	220	8xø26	26
150	16	475	405	300	285	240	8xø22	24
	25	475	405	300	300	250	8xø26	28
200	16	505	435	350	340	295	12xø22	26
	25	505	435	350	360	310	12xø26	30
250	16	590	520	450	405	355	12xø26	29
	25	590	520	450	425	370	12xø30	32
300	16	645	575	500	460	410	12xø26	32
350	10	695	625	550	505	460	16xø22	28
400	10	745	675	600	565	515	16xø26	32
450	10	825	755	600	615	565	20xø26	36
500	10	878	808	600	670	620	20xø26	38
600	10	988	918	600	780	725	20xø30	42
700	10	1095	1025	700	895	840	24xø30	36
800	10	1208	1138	800	1015	950	24xø34	36
900	6	1310	1220	900	1075	1020	24xø30	38
1000	6	1413	1323	1000	1175	1120	28xø30	38
1200	6	1525	1435	1200	1405	1340	32xø33	36
1400	6	1735	1645	1400	1630	1560	36xø36	36
1600	6	1965	1875	1600	1830	1760	40xø36	36
1800	6	2155	2065	1800	2045	1970	44xø39	36
2000	6	2365	2275	2000	2265	2180	48xø42	36

* Dimension Unit mm

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MESURING RANGE

DN (mm)	Flow Range (L/s)		Flow Range (m³/h)		Ordering Code
	Qmin	Qmak	Qmin	Qmak	
10	0,0078	0,785	0,0282	2,827	0010
15	0,0176	1,767	0,0636	6,361	0015
20	0,0314	3,141	0,1130	11,3	0020
25	0,0490	4,908	0,1767	17,67	0025
32	0,0804	8,042	0,2895	28,95	0032
40	0,1256	12,56	0,4523	45,23	0040
50	0,1963	19,63	0,7068	70,68	0050
65	0,3318	33,18	1,194	119,4	0065
80	0,5026	50,26	1,809	180,9	0080
100	0,7853	78,53	2,827	282,7	0100
125	1,227	122,7	4,417	441,7	0125
150	1,767	176,6	6,361	636,1	0150
200	3,141	314,1	11,30	1130	0200
250	4,908	490,8	17,67	1767	0250
300	7,068	706,8	25,44	2544	0300
350	9,621	962,1	34,63	3463	0350
400	12,56	1256	45,23	4523	0400
450	15,90	1590	57,25	5725	0450
500	19,63	1963	70,68	7068	0500
600	28,27	2827	101,7	10178	0600
700	38,48	3848	138,5	13854	0700
800	50,26	5026	180,9	18095	0800
900	63,61	6361	229	22902	0900
1000	78,53	7853	282,7	28274	1000
1200	113,09	11309	407,15	40715	1200
1400	153,93	15393	554,17	55417	1400
1600	201,06	20106	723,82	72382	1600
1800	254,46	25446	916,08	91608	1800
2000	314,15	31415	1130,97	113097	2000
2200	380,13	38013	1368,47	136847	2200

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ELECTRICAL DATA

Medium Electrical Conductivity
≤5 µS/cm / ≤20 µS/cm (For demineralized water)

Input Resistance
10^{10} Ohm

Measurement Accuracy
±0.5% of measured value within 0.1 ... 10 m/s
Optional: ±0.2%

Analog Output (Active)
4...20 mA/ 500 Ohm

Impulse Output
4(0) / 20 mN 500 Ohms
Standard 0...1 kHz/ 0....1O kHz max. (30 V/20 mNDC)

Flow Direction Relay Module
Optional

Power Supply
90-250V/ 50-60 Hz/ 1O VA 24V/ >0,5 NDC

Ambient Temperature
-20°c ... +70°C

Calibration Certificate
3-Point

Controller Variant	Spetification	EMDE-RM	EMDE-CM	EMDE-IC	EMDE-TR
Measuring Filtration	Adjustable in multiple modes	✓	✓	✓	
Elimination of small flows	Adjustable at 0.1%	✓	✓	✓	
Instant Flow	B-D (L/s, L/dak, m³/sa, Ga/dak, vb.)	✓	✓	✓	
Total Flow	Bi-directional (m³, L, galon)	✓	✓	✓	
Zero Flow	Automatic zero point set-up	✓	✓	✓	
Values Display	Graphic display, 132 x 64 pixels			✓	
	Alphanumeric LCD, 2 × 16 characters	✓	✓		
Set-up	Infrared touch / data			✓	
Optional Modes	Empty pipe detection / dosing	✓	✓	✓	
Alarm Output 1	Selectable	✓	✓	✓	
Alarm Output 2	Selectable	✓	✓	✓	
Enclosure	IP67	✓	✓	✓	
	IP68	✓			✓
Accessories	Infrared remote control			✓	

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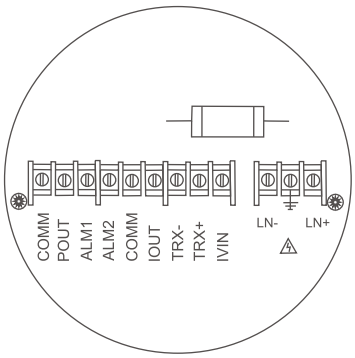
COMMUNICATION

Optional

RS 232
RS 485
HART DTM
Modbus-RTU
Profi-bus

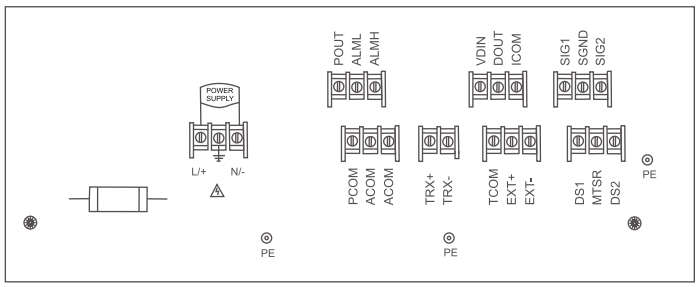
WIRING



Kompakt Muhafaza

Note: Do not connect 110–240 V AC supply to 221B type DC power supply input.

POUT	Frequency (Pulse) output – remote, bidirectional flow
ALM1	Alarm output – upper limit
ALM2	Alarm output – low limit
COMM	Frequency, Pulse and Current Common (GND)
COMM	Frequency, Pulse and Current Common (GND)
IOUT	Current Output of Flow Rate
IVIN	24V DC Power Supply far 2-wire 4-20mA Output
TRX+	RS485 Communication (+)
TRX-	RS485 Communication (–)
LN+	L: 110–240 V AC Live Line / +24 V DC (+)
LN-	N: 110–240 V AC Neutral / –24 V DC (–)



Pulse Output	POUT	Frequency (Pulse) output, remote, bidirectional flow
	PCOM	Pulse output ground
Alarm Output	ALMH	Alarm output for upper limit
	ACOM	Alarm output ground
Alarm Output	ALML	Alarm Output far Low Limit
	ACOM	Alarm output ground
RS485 (Optional)	TRX+	RS485 communication (+)
	TRX-	RS485 communication (–)
Analog Output	VDIN	24 V DC supply input, 2-wire, 4–20 mA
	IOUT	Analog current output
	ICOM	Analog current output ground
Power Supply	L/+	L: 110–240 V AC live / +24 V DC (+)
	N/-	N: 110–240 V AC neutral / –24 V DC (–)
Sensor Input Signals	SIG1	Signal 1
	SGND	Signal ground
	SIG2	Signal 2
	TCOM	Reserved
	EXT+	Excitation current (+)
	EXT-	Excitation current (–)
	DS1	Shielded excitation 1
	MTSR	Reserved
	DS2	Shielded excitation 2

Note: Do not connect 110–240 V AC supply to 221B type DC power supply input.

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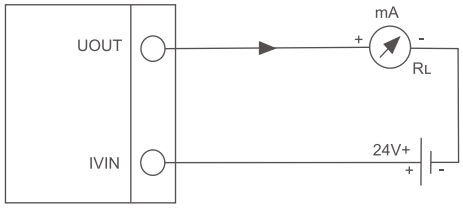
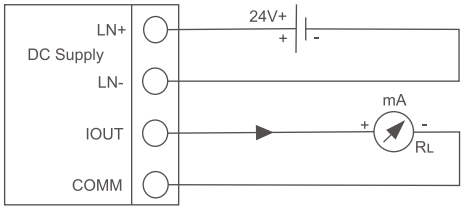
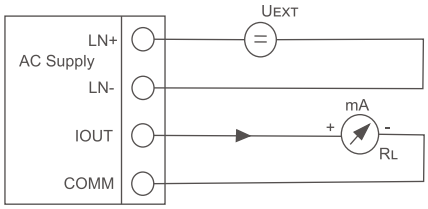


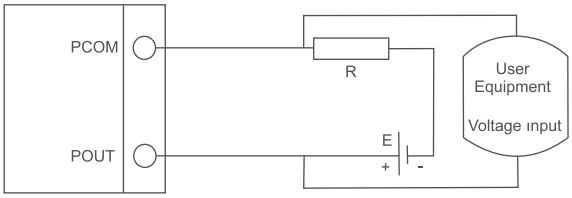
Current Output – 2-Wire Connection



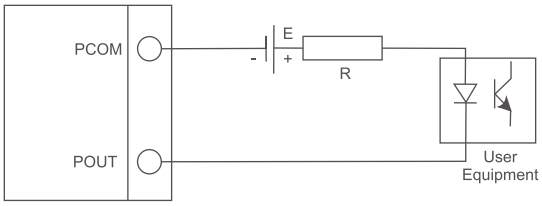
Current Output – 4-Wire Connection (DC)



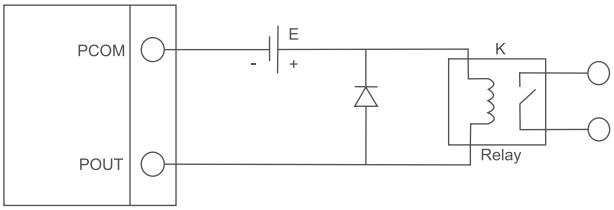
Current Output – 4-Wire Connection (AC)



Digital Voltage Output



Digital Output for Optocoupler Connection



Relay Digital Output

APPROVALS

EN61326-1:2013
EN61326-2-3:2013
EN61010-1:2011
ISO 9001:2015
PED Gr.1
IEC/EN 60529, LVD-656-02
ISO17025 Calibration Certificate FieldComm Group Membership

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ORDERING

Model	
EMDE.Z	Zero Straight Run Electromagnetic Flowmeter

Transmitter Type	
TR	Blind version, no display
CM	Compact design
IC	Compact design with infrared control
RM	Remote type (please specify cable length)
BT	Battery powered compact version

Line Size	
XXXX	Please refer to the flow range table

Flange Rating	
06	PN06 DIN
10	PN10 DIN
16	PN16 DIN
40	PN40 DIN
XX	Please specify

Electrode Material	
00	AISI 316L
01	Titanium
02	Tantalum
03	Hastelloy C
04	Hastelloy B
05	Platinum
06	Nickel Alloy

Lining Material	
01	Hard rubber
02	PTFE
03	PE
04	PFA

Power Supply	
AC	85–250 V AC
DC	20–36 V DC

Communication	
NN	None
01	RS232
02	RS485
03	Modbus RTU
04	HART DTM
05	Profibus

Enclosure	
01	IP67
02	Flameproof Ex d
03	IP68

Grounding Ring	
NN	None
01	Steel
02	Stainless steel
XX	Please specify

Body Material	
CS	Carbon steel
SS	Stainless steel

Accuracy	
02	±0.2%
05	±0.5%

Flow Direction Relay Module	
N	None
R	1 × Dry Contact

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