50146 / 1.4 / 2024-11-20 / LD / EU

Product information IZMSA **FOOD**

Magnetic-Inductive Flow Meter IZMSA

Application/Specified usage

- Magnetic-inductive flowmeter for the measurement of flow rate and volume in food applications
- Suitable for liquids, mash and pastes with a minimum conductivity of 5 µS/cm
- Precise measurement of media containing solids
- Measurement range from 30 l/h to 280 000 l/h
- Suitable for dosing and filling applications
- Version with Evaluation Certificate TC7520 for installation in official measuring systems according to 2014/32/EU possible (option)

Hygienic design/Process connection

- All wetted materials are FDA-conform
- Wear-free measuring principle
- Meter tube in flow tube with PFA coating
- Vacuum-tight and piggable
- Electrodes made of stainless steel 1.4404 / AISI 316L
- Sensor available with or without process connections

Special features/Advantages

- CIP/SIP cleaning up to 130 °C / 266 °F for max. 30 minutes
- High measurement accuracy even at low flow rates
- Measurement independent of density, viscosity, pressure and temperature
- Switch input for resetting the quantity-/volume counter (option)
- Automatic empty pipe detection avoids undefined readings for empty pipes
- PFA lining for maximum resistance to aggressive substances such as acids and bases
- Vacuum-tight, rigid meter tube lining, even at high temperatures
- Swiveling housing head, illuminated LC display (optional)
- Minimal maintenance effort
- Self-monitoring with automatic fault diagnosis

Options/Accessories

- Various configurations possible, e.g. temperature recording incl. date and time ("T0") or quantity preselection control ("SV")
- Official usage version available

Communication

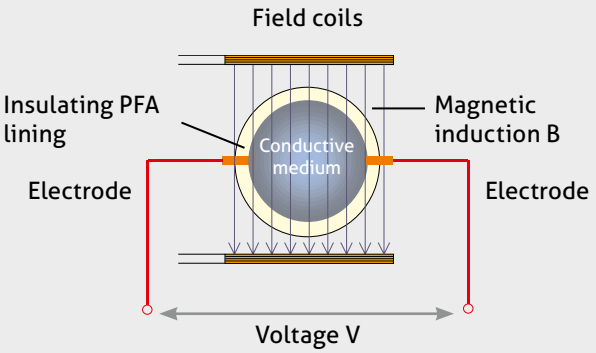
0/4...20 mA Hz 0/1

IZMSA flowmeter

Functional principle

The principle behind this measurement method is Faraday's law of induction. This law states that a voltage is induced in a conductor that moves in a magnetic field. In the magnetic-inductive measurement method, the flowing, conductive medium acts as the conductor. Two vertically positioned field coils generate a constant magnetic field. The voltage induced in the flowing medium is measured by two stainless steel electrodes that are arranged horizontally. The voltage is directly proportional to the flow rate and can be expressed as the flow volume using the nominal tube width. The determined measurement values are made available as a counting pulse and 4...20 mA standard signal.

Magnetic-inductive measurement

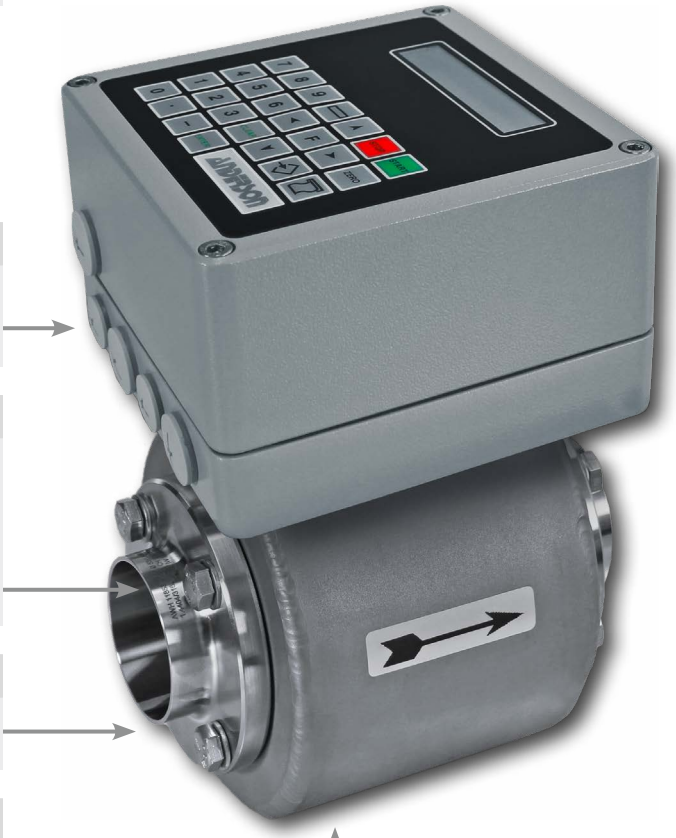


Configurations

- S0: 4x optocoupler digital outputs and 1x analog output
- SV: 4x optocoupler digital outputs and 1x analog output
- T0: 4x active outputs, 1x analog output and 1x temperature input
- TV: Combination of "T0" and "SV"
- Special customer setting

Versions / Options

- Compact and remote version for different applications
- Illuminated LC display with 2x 20 digits
- Quantity preselection control
- Temperature recording
- Official usage version



Electrical connection

- Cable gland
- Power supply 24 V DC

Meter tube

Aseptic flange DIN 11864-2, form A

Pipe standard
- DIN 11850 series 2
- DN 10...DN 100

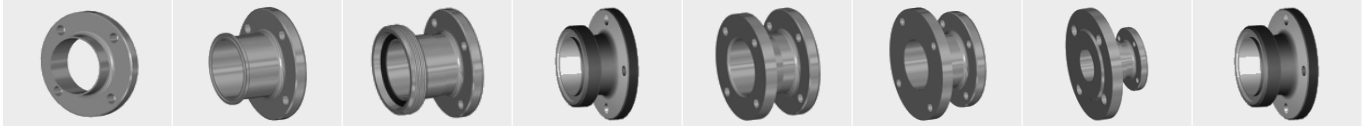
Process connection

- Wide variety of process connections available

Measurement flow tube

- PFA liner, vacuum-tight, piggable, FDA-approved
- Measurement electrodes, 1.4404 / AISI 316L

Process adapters (optional available)



SS Weld flange	TC Tri-Clamp	GG Milk pipe fitting	HH Aseptic fitting	VN Varivent	FG FG hygienic flange	DF DIN flange	SM SMS threaded connector

Note

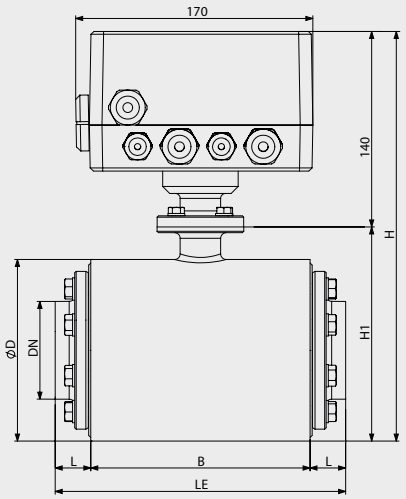
This product information is not an operating manual. Please note the information on device safety, installation and operation in the product operating manual.

Technical data		
Measurement flow tube	Measuring principle Measurement range Nominal width Pipe standard	Magnetic-inductive 0.15...10 m/s DN 10...DN 100 DIN 11850 Series 2
Process connection (optional)	Pipe standards	DIN 11850 Series 2 OD tube (ASME BPE)
Material	Seal Flow tube housing Flow tube lining Electrodes Transmitter housing Cable gland	EPDM, FDA number 21 CFR 177.2600 1.4301 / AISI 304, blasted PFA, FDA number 21 CFR 177.1550 1.4404 / AISI 316L Cast aluminum (with special anti-corrosion paint) Brass galvanic nickel plated
Pipe connection		1.4404 / AISI 316L
Temperature ranges	Ambient Compact design Remote design	-25...60 °C / -13...140 °F Process: 0...100 °C / 32...212 °F CIP/SIP cleaning: up to 130 °C / 266 °F max. 30 min Process: 0...165 °C / 32...329 °F
Operating pressure	PN16	0.1...17 bar / 1.5...246 psi absolute, vacuum-tight (may be lower depending on the selected process adapter)
Protection class		IP 65
Transmitter	Display Electrical connection Supply voltage Power consumption	2x 20 digits, illuminated LC display Cable gland 3x M20x1.5 and 3x M16x1.5 10...30 V DC / 0.8...0.3 A Max. 15 VA / 8 Watt
Measurement accuracy		±0.5 % ±2 mm/s, under reference conditions as per DIN EN 29104 and VDI/VDE 2641
Product conductivity	Standard Demineralized water	> 5 µS/cm > 20 µS/cm
Digital input	4x optocoupler	Activation: 10...30 V DC Counter interruption (standby) and zero setting
Analog output		0/4...20 mA (active) Burden max. 500 Ω

Communication configuration "S0"		
Digital output	4x optocoupler	Load max. 30 V / max. 20 mA (passive)
Communication configuration "SV"		
Digital output	4x optocoupler	Load max. 30 V / max. 20 mA (passive) Volume pulse, status signal
Communication configuration "T0"		
Digital output	4x active outputs	200 mA, Volume pulse, status signal
Temperature input		Pt100, 4-wire
Communication configuration "TV"		
Digital output	4x active outputs	200 mA, Volume pulse, status signal
Temperature input		Pt100, 4-wire

IZMSA dimensions and optional process connections

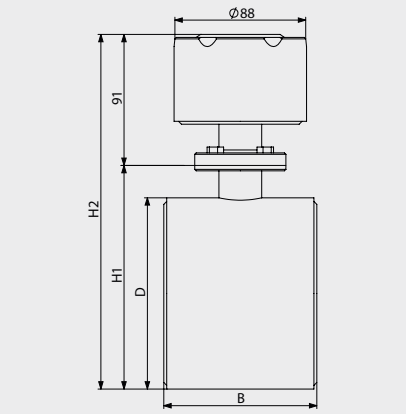
IZMSA-C dimensional drawing



Dimensions and weight IZMSA-C without process connection

Flow tube type	DN flow tube	B	D	H	L	LE	H1	Weight [kg]
FT010	**10**	104	90	250	25.5	155	110	6.1
FT015	**15**	104	90	250	25.5	155	110	6.2
FT025	**25**	104	90	250	25.5	155	110	6.5
FT032	**32**	104	105	265	25.5	155	125	6.9
FT040	**40**	104	105	265	25.5	155	125	7.8
FT050	**50**	104	130	290	25.5	155	150	8.3
FT065	**65**	160	130	290	25.5	211	150	10.7
FT080	**80**	160	155	315	27.5	215	175	14.1
FT100	**100**	200	170	330	27.5	255	190	13.6

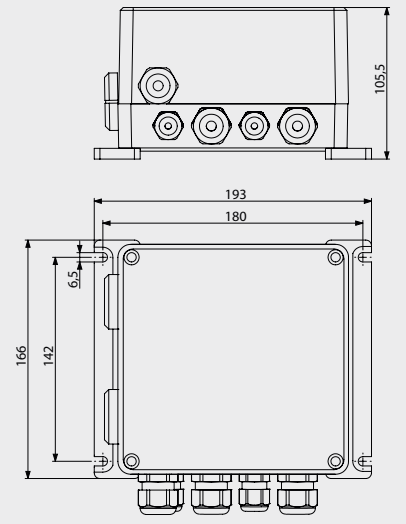
IZMSA-R dimensional drawing flow tube



Dimensions, measurement range and weight of the flow tube for IZMSA without process connection

Flow tube type	DN flow tube	B	D	H1	H2	Measurement range [l/h]	Weight [kg]
FT010	**10**	104	90	110	201	30...3,000	2.6
FT015	**15**	104	90	110	201	70...7,000	2.7
FT025	**25**	104	90	110	201	180...18,000	3.0
FT032	**32**	104	105	125	216	300...30,000	3.4
FT040	**40**	104	105	125	216	450...45,000	4.3
FT050	**50**	104	130	150	241	700...70,000	4.8
FT065	**65**	160	130	150	241	1,200...120,000	7.2
FT080	**80**	160	155	175	266	1,800...180,000	10.6
FT100	**100**	200	170	190	281	2,800...280,000	10.1

IZMSA-R dimensional drawing electronics



Dimensions: pipe standard DIN 11850 Series 2 and flow tube type									
		Installation length LE							
DN pipe	**Pipe dimension Da x S**	**SS**	**TC as per DIN 32676** (plate size)	**GG**	**HH**	**DF**	**VN**	**FG**	**Flow tube type**
10	13 x 1.5	152	200 (34)	200	190	200	200	200	**FT010**
15	19 x 1.5	152	200 (34)	200	190	200	200	200	**FT015**
25	29 x 1.5	152	200 (50)	200	204	225	200	200	**FT025**
32	35 x 1.5	152	200 (50)	200	212	225	200	200	**FT032**
40	41 x 1.5	152	200 (50)	200	214	225	200	200	**FT040**
50	53 x 1.5	152	200 (64)	200	214	225	200	200	**FT050**
65	70 x 2.0	208	256 (91)	256	280	306	256	256	**FT065**
80	85 x 2.0	212	255 (91)	255	296	305	255	255	**FT080**
100	104 x 2.0	252	340 (119)	340	352	340	340	340	**FT100**

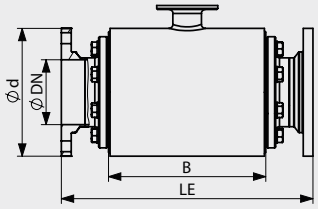
Dimensions: pipe standard OD tube (ASME-BPE) and flow tube type					
		Installation length LE			
DN pipe	**Pipe dimen-sion Da x S**	**SS**	**TC as per ASME-BPE** (plate size)	**SM**	**Flow tube type**
1/2"	12.7 x 1.65	152	170.8 (25)	-	**FT010**
3/4"	19.05 x 1.65	152	204.6 (25)	-	**FT015**
1"	25.4 x 1.65	152	202.8 (50)	182	**FT025**
1½"	38.1 x 1.65	152	202.8 (50)	192	**FT040**
2"	50.8 x 1.65	152	202.8 (64)	192	**FT050**
2½"	63.5 x 1.65	208	229.4 (77)	256	**FT065**
3"	76.2 x 1.65	212	252.6 (91)	260	**FT080**
4"	101.6 x 2.11	252	299.2 (119)	312	**FT100**

Note

All dimensions in millimeters [mm].

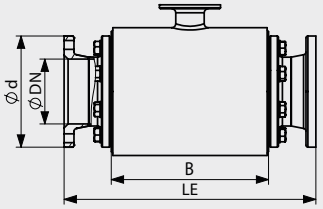
FG | Hygiene flange, smooth flange

ø DN	DN pipe	ø d	LE
25	25	80	200
40	40	92	200
50	50	108	200
65	65	130	256
80	80	146	255
100	71.5	166	340



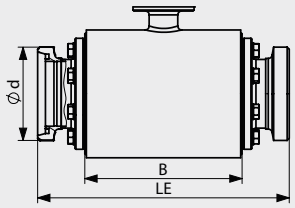
VN | VARIVENT

ø DN	DN pipe	ø d	LE
25	25	70	200
32	32	76	200
40	40	82	200
50	50	94	200
65	65	113	256
80	80	128	256



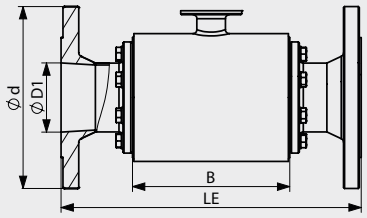
GG | Milk pipe fitting DIN 11851

ø DN	DN pipe	ø d	LE
10	10	Rd 28 x ⅛"	200
15	15	Rd 34 x ⅛"	200
25	25	Rd 52 x ⅙"	200
32	32	Rd 58 x ⅙"	200
40	40	Rd 65 x ⅙"	200
50	50	Rd 78 x ⅙"	200
65	65	Rd 95 x ⅙"	256
80	80	Rd 110 x ¼"	256



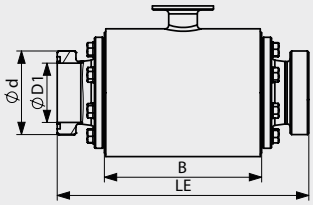
DF | DIN flange DIN EN 1092-1

ø DN	DN pipe	ø D1	ø d	LE
10	10	13.6	90	200
15	15	17.3	95	200
25	25	28.5	115	225
40	40	43.1	150	225
50	50	54.5	165	225
65	65	70.3	185	306
80	80	82.3	200	305
100	100	107.1	235	340



SM | SMS threaded connector 1146

ø DN	DN pipe	ø D1	ø d	LE
25	1"	22.5	Rd 40 x ⅙"	182
40	1½"	35.5	Rd 60 x ⅙"	192
50	2"	48.5	Rd 70 x ⅙"	192
65	2½"	60.5	Rd 85 x ⅙"	256
80	3"	73.1	Rd 98 x ⅙"	260
100	4"	97.6	Rd 132 x ⅙"	312



Note

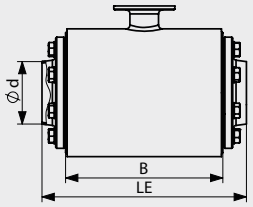
· All dimensions in millimeters [mm].
· "ø DN" always refers to the pipe diameter of the transmitter.

SS | Weld flange DIN 11853-2

DINA, DIN2			
ø DN	DN pipe	ø d	LE
10	10	13.0	152
15	15	19.0	152
25	25	29.0	152
32	32	35.0	152
40	40	41.0	152
50	50	53.0	152
65	65	70.0	208
80	80	85.0	212
100	100	104.0	252

DINB			
ø DN	DN pipe	ø d	LE
10	08	13.5	152
15	10	17.2	152
25	15	21.3	152
	20	26.9	152
32	25	33.7	152
40	32	42.4	152
50	40	48.3	152
	50	60.3	152
65	65	76.1	208
80	80	88.9	212
100	100	114.3	252

DINC, ASME			
ø DN	DN pipe	ø d	LE
10	1/2"	12.7	152
15	3/4"	19.05	152
25	1"	25.4	152
40	1½	38.1	152
50	2"	50.8	152
65	2½"	63.5	208
80	3"	76.2	212
100	4"	101.6	252

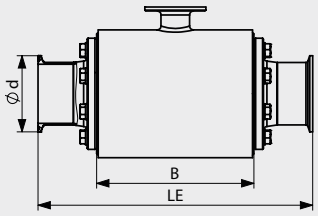


TC | Tri-Clamp DIN 32676 or ASME-BPE

DINA, DIN2			
ø DN	DN pipe	ø d	LE
10	10	34.0	200
15	15	34.0	200
25	25	50.5	200
32	32	50.5	200
40	40	50.5	200
50	50	64.0	200
65	65	91.0	256
80	80	106.0	256
100	100	119.0	340

DINB			
ø DN	DN pipe	ø d	LE
10	08	25.0	200
15	10	25.0	200
25	20	50.5	200
32	25	50.5	200
40	32	64.0	200
50	40	64.0	200
	50	77.0	200
65	65	91.0	256
80	80	106.0	256
100	100	119.0	340

DINC, ASME			
ø DN	DN pipe	ø d	LE
10	1/2"	12.7	170.8
15	3/4"	19.05	204.6
25	1"	25.4	202.8
40	1½"	38.1	202.8
50	2"	50.8	202.8
65	2½"	63.5	229.4
80	3"	76.2	252.6
100	4"	101.6	299.2

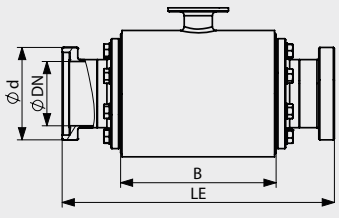


HH | Aseptic fitting 11853-1

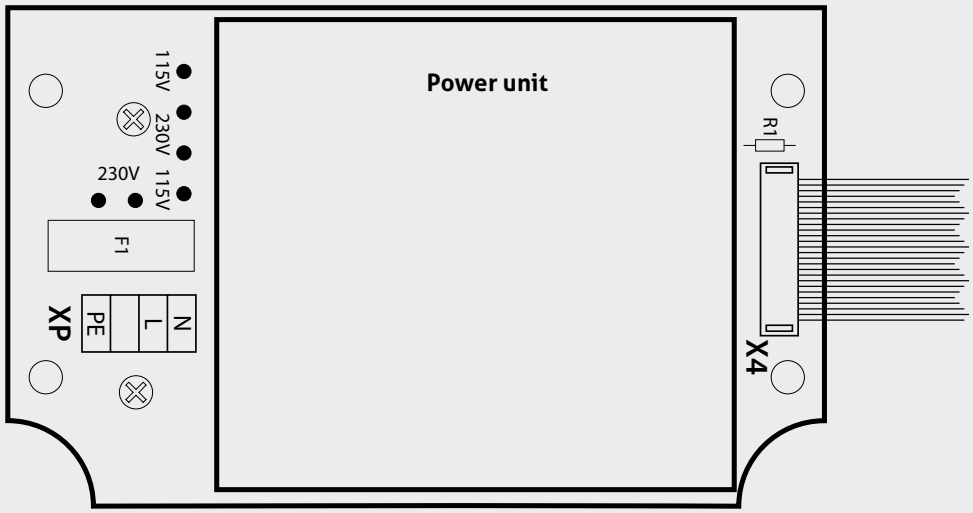
Series A, DIN2			
ø DN	DN pipe	ø d	LE
10	10	Rd 28 x ⅛"	190
15	15	Rd 34 x ⅛"	190
25	25	Rd 52 x ⅙"	204
32	32	Rd 58 x ⅙"	212
40	40	Rd 65 x ⅙"	214
50	50	Rd 78 x ⅙"	214
65	65	Rd 95 x ⅙"	280
80	80	Rd 110 x ¼"	296
100	100	Rd 130 x ¼"	352

Series B			
ø DN	DN pipe	ø d	LE
10	08	Rd 28 x ⅛"	190
15	10	Rd 34 x ⅛"	190
25	15	Rd 44 x ⅙"	194
	20	Rd 52 x ⅙"	204
32	25	Rd 58 x ⅙"	212
40	32	Rd 65 x ⅙"	214
50	40	Rd 78 x ⅙"	214
	50	Rd 95 x ⅙"	224
65	65	Rd 110 x ¼"	292
80	80	Rd 130 x ¼"	312

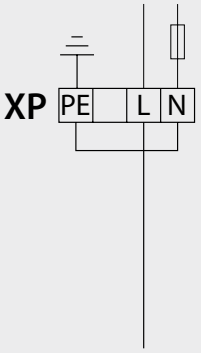
Series C, ASME			
ø DN	DN pipe	ø d	LE
10	1/2"	Rd 28 x ⅛"	190
15	3/4"	Rd 34 x ⅛"	190
25	1"	Rd 52 x ⅙"	204
40	1½"	Rd 65 x ⅙"	214
50	2"	Rd 78 x ⅙"	214
65	2½"	Rd 95 x ⅙"	280
80	3"	Rd 110 x ¼"	296
100	4"	Rd 130 x ¼"	352



Electrical connection



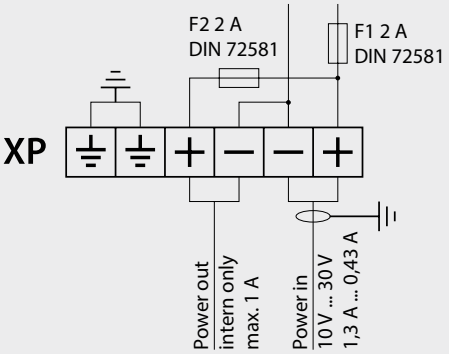
Electrical connection AC



F1: 315 mA slow-blow

Power supply
115/230 V AC
50...60 Hz
70 mA

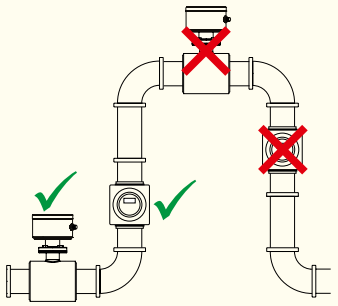
Electrical connection DC



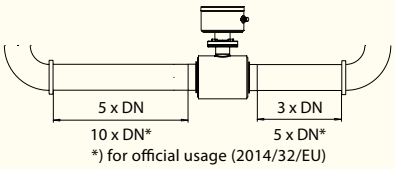
Connect screen into cablethreading

Mechanical Connection / Installation

- **For installation please check also the installation remarks mentioned in the product manual.**
- **Correct installation:**
  - Before or into an ascending pipe.
- **Wrong installation:**
  - Before or into a descending pipe.
  - Into the highest point of a pipe, air bubbles will concentrate there.



Flow direction of media



Flow direction of media

Notice on CE

- Applicable directives:
  Electromagnetic Compatibility Directive 2014/30/EU
- Compliance with the applicable EU directives is identified by the CE label on the product.
- The operating company is responsible for complying with the guidelines applicable to the entire installation.

Disposal

- Electrical devices should not be disposed of with household trash. They must be recycled in accordance with national laws and regulations.
- Take the device directly to a specialized recycling company and do not use municipal collection points.

Cleaning/Maintenance

· When using a pressure washer, do not point the nozzle directly at the electrical connections.

Standards and guidelines

· Compliance with the applicable regulations and directives is mandatory.

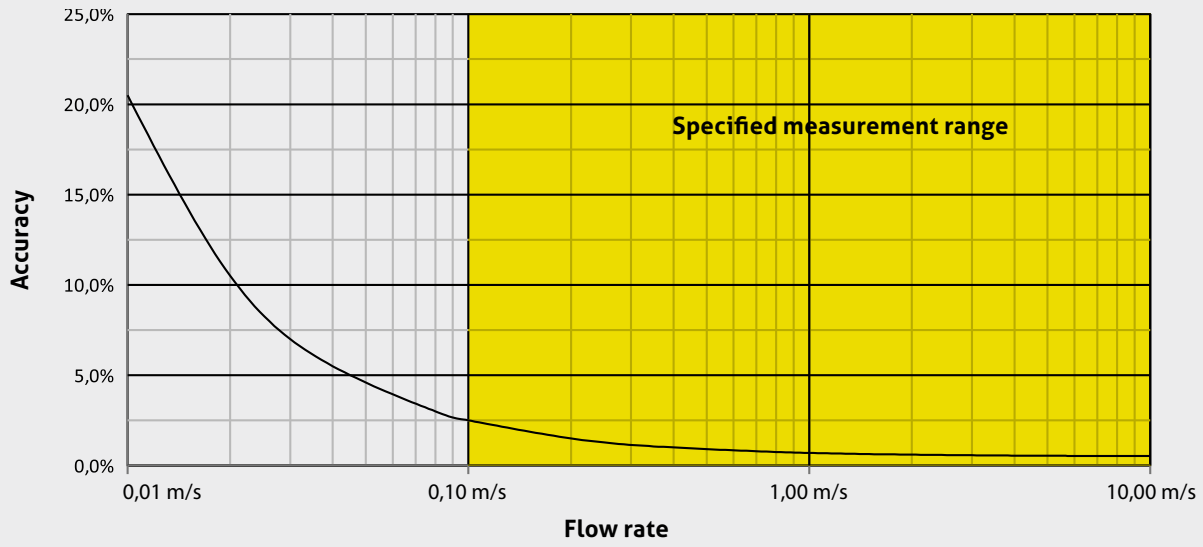
Transport/Storage

· Do not store outside
· Store in an area that is dry and dust-free
· Do not expose to corrosive media
· Protect against solar radiation
· Avoid mechanical shock and vibration
· Storage temperature 0...55 °C / 32...131 °F
· Relative humidity max. 80 %

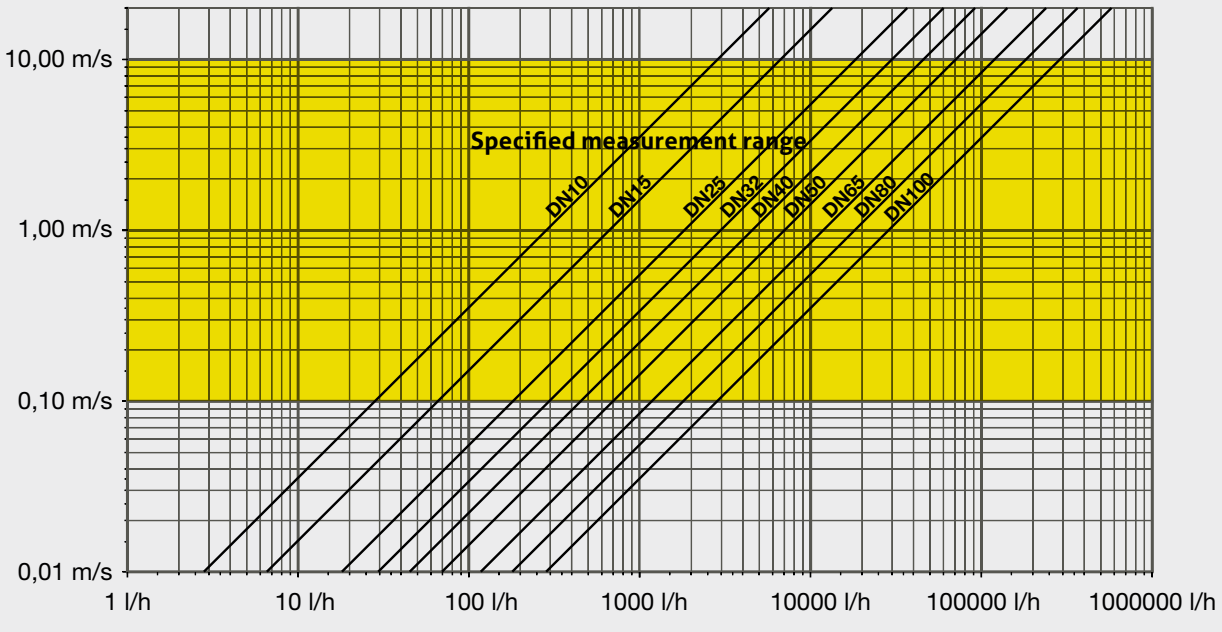
Reshipment

· Sensors and process connection must be clean and must not be contaminated with hazardous media and/or heat-conductive paste. Please note the cleaning notice!
· To avoid damage of the equipment, use suitable transport packaging only.

Measurement accuracy by flow rate



Flow rate nomogram



Note: Minimum flow rates may deviate for official usage versions.

Process connection kit for IZMSA

FMQ-FC Process connection for food applications; material 1.4404 / AISI 316L

Pipe standard

DIN2	DIN11850 Series 2
ASME	OD tube as per ASME-BPE

Flow tube (fits the specified nominal widths of the process connections as per standard)

DIN2	ASME	
010	**1/2"**	Suitable for flow tube FT010
015	**3/4"**	Suitable for flow tube FT015
025	**1"**	Suitable for flow tube FT025
032	**-**	Suitable for flow tube FT032
040	**1,5"**	Suitable for flow tube FT040
050	**2"**	Suitable for flow tube FT050
065	**2,5"**	Suitable for flow tube FT065
080	**3"**	Suitable for flow tube FT080
100	**4"**	Suitable for flow tube FT100

Process connection

GG	Milk pipe fitting DIN 11851
VN	VARIVENT smooth flange
FG	FG hygiene flange, smooth flange
DF	DIN flange as per DIN EN 1092-1 Type 11 Form B
SM	SMS threaded connector 1146
SS	Weld flange DIN 11853-2
TC	Tri-Clamp DIN 32676 or ASME-BPE
HH	Aseptic fitting DIN 11864-1 threaded side

Surface

08	$R_a \leq 0.8$ µm

FMQ-FC / DIN2 / 100 / SS / 08

Note

The process connection kit FMQ-FC (food) contains:
· Process connections made of stainless steel (1.4404 / AISI 316L) including the required screws
· Seals EPDM (FDA number 21 CFR 177.2600)

Remote version with flow tube and head electronics

IZMSA-R Magnetic-inductive flow meter, remote version

Interconnect cable

1	1 meter length
2	2 meter length
3	3 meter length
4	4 meter length
5	5 meter length
6	6 meter length
7	7 meter length
8	8 meter length
9	9 meter length
10	10 meter length

Nominal diameter/size

FT010	Meter tube nominal width DN 10
FT015	Meter tube nominal width DN 15
FT025	Meter tube nominal width DN 25
FT032	Meter tube nominal width DN 32
FT040	Meter tube nominal width DN 40
FT050	Meter tube nominal width DN 50
FT065	Meter tube nominal width DN 65
FT080	Meter tube nominal width DN 80
FT100	Meter tube nominal width DN 100

Certificate

S	None
P	3.1 certificates of all wetted parts and factory calibration certificate

Display

0	No display (not available with SV, T0, TV)
D	LC display

Power supply

DC	10...30 V DC

Configuration

S0	Standard
SV	Quantity preselection
T0	Temperature input
TV	Temperature input and quantity preselection
MXX	Special customer setting

Version

X	Standard
E	For official usage

IZMSA-R / 1 / FT010 / S / 0 / DC / S0 / X

Compact device with flow tube and head electronics

IZMSA-C Compact magnetic-inductive flow meter

Nominal diameter/size

FT010	Meter tube nominal width DN 10
FT015	Meter tube nominal width DN 15
FT025	Meter tube nominal width DN 25
FT032	Meter tube nominal width DN 32
FT040	Meter tube nominal width DN 40
FT050	Meter tube nominal width DN 50
FT065	Meter tube nominal width DN 65
FT080	Meter tube nominal width DN 80
FT100	Meter tube nominal width DN 100

Certificate

S	None
P	3.1 certificates of all wetted parts and factory calibration certificate

Display

0	No display (not available with SV, T0, TV)
D	LC display

Power supply

DC	10...30 V DC

Configuration

S0	Standard
SV	Quantity preselection
T0	Temperature input
TV	Temperature input and quantity preselection
MXX	Special customer setting

Version

X	Standard
E	For official usage

IZMSA-C / FT010 / S / 0 / DC / S0

Options

CERT / 2.2 / IZMSA	Factory certificate 2.2 as per EN 10204 (product-contacting only)
RE-CAL / IZMSA	Recalibration of a IZMSA (standard calibration certificate, 2...3 calibration points 10 %, 50 %, 100 %)

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