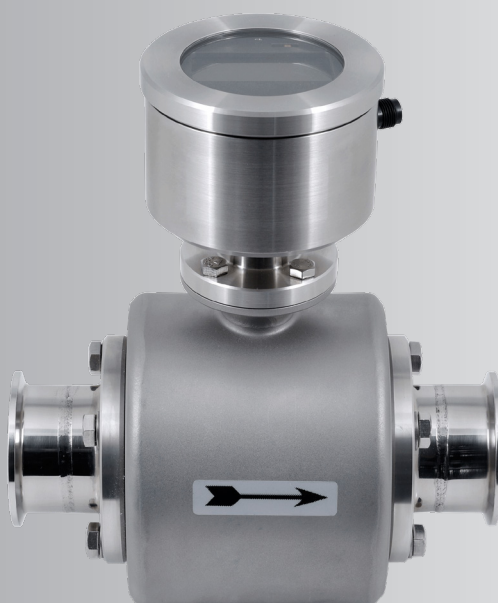




Reliable Flow Control

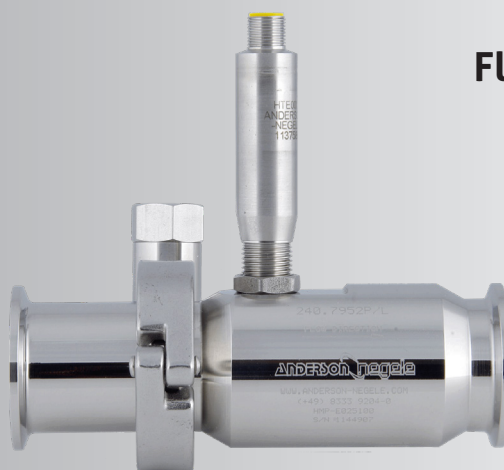
with flow meters and flow switches for all applications



**Electromagnetic
Flow Meters**



Flow Switches



**Turbine
Flow Meters**

The compact & cost-effective all-rounder. With IO-Link FMQ: Permanently precise flow measurement

The FMQ electromagnetic flow meter is a tried- and tested, extremely versatile, robust, and reliable device for all conductive media. The performance spectrum is tailored to almost all applications, including dosing and filling applications.

IO-Link technology: digital IO-Link + analog 4...20 mA communication

- **Extremely compact:** Minimal size of measuring body and electronics allow easy, vibration-insensitive integration into almost all applications
- **Extremely robust:** All components are completely made of stainless steel. The magnetic field coils of the measuring system are consistently encapsulated, which guarantees permanently reliable, precise measuring results even in very harsh environments with strong vibrations or pressure surges
- **Extremely reliable:** Completely protected against moisture, corrosion, and vibrations; vacuum-proof tube lining made of high-quality PFA; **process temperature up to 100°C (212 °F) for compact / 165 °C (329 °F) for remote version, CIP & pigging possible.**
- **Always accurate:** Automatic signal processing ensures correct measured values even when changing media (e.g. milk/CIP cleaner)
- **Easy commissioning and operation:** User-friendly, rotatable display with optical buttons, no opening of the housing, no mechanical buttons, quick & easy programming
- **Manufacturer-independent process connection:** Standard aseptic flange according to DIN 11864, with O-ring, pipe standard DN10 ...DN100 (1/2" ...4")
- **Remote version** (separate electronics) available, cable length from 1 to 10 m



Technical specifications at a glance

- **Technology with digital + analog interface (IO-Link + 4...20 mA)**
- **Measuring range from 30 U/h to 280 000 U/h**
- **Measuring accuracy: ±0,5% ±2mm/s**
- **For liquids, mashes and pastes with a conductivity of > 5 µS/cm**
- **Process temperature up to 100 °C (212 °F) for compact / 165 °C (329 °F) for remote version**
- **CIP-/ SIP-cleaning up to 130 °C (266 °F) / max. 30 minutes**



FMQ Compact device with transmitter and head electronics

FMQ 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 / Cap

L	Optical LED status light (not available with M12 connection options K or L)
B	Blind stainless steel cap
D	Graphic display

M12 Connection / Communication

X	M12 connector, 4-pin, plastic
K	M12 connector IO-Link, 4-pin, stainless steel
L	M12 connector IO-Link with switch input, 5-pin, stainless steel
M12	M12 connector without switch input, 4-pin, stainless steel
M	M12 connector with switch input, 5-pin, stainless steel

FMQ / FT010 / S / L / X

FMQ-R Remote Magnetic-Inductive Flow Meter

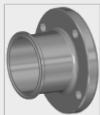
Interconnect Cable

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

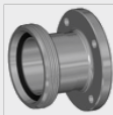
Process adapters (optional available)



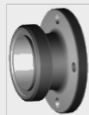
SS
Weld flange



TC
Tri-Clamp



GG
Milk pipe
fitting



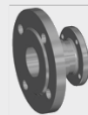
HH
Aseptic
fitting



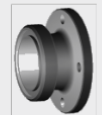
VN
Varivent



FG
FG hygienic
flange



DF
DIN flange



SM
SMS
threaded
connector

IZMSA: Precision with self-learning effect, also Certifiable Flow measurement with many options

The electromagnetic flow meter IZMSA offers optimised and automated monitoring, especially for keg filling, blending vessels and other dosing applications. Overrun control, quantity preselection and temperature detection create more accuracy, reproducibility, and process reliability.

Certifiable for official usage:

Evaluation Certificate TC 7520 for Installation in official measuring systems according to 2014/32/EU and Custody Transfer Measurement.

• Self-learning overrun control:

Overfill quantities, e.g. due to valve response times, are detected and automatically compensated for.

• Quantity Preselection (Option):

For recurring filling processes, the target quantity can be set. A separate throttling stage improves reproducibility.

• Temperature detection (Option):

A direct Pt100 input with time and date recording registers temperature effects

• Simplest commissioning and operation:

User-friendly control unit with display and buttons, no need to open the housing, quick and easy programming.

• Manufacturer-independent process connection:

Standard aseptic flange according to DIN 11864, with O-ring (no hygiene-sensitive surface seal), pipe standard DN10 ...DN100 (1/2" ...4").



Technical specifications IZMSA at a glance

- Measuring range from 30 l/h to 280.000 l/h
- Measuring accuracy: $\pm 0,5\%$ $\pm 2\text{mm/s}$
- High measuring accuracy even at low flow rates
- For liquids, slurries and pastes with a minimum conductivity of $> 5 \mu\text{S/cm}$
- Process temperature up to 100°C (212°F) for compact / 165°C (329°F) for remote version
- CIP-/SIP up to 130°C (266°F) / max. 30 min

The complete diversity of electromagnetic flow measurement:

High precision when it matters: FMI

Has everything you really need: FMQ

The alternative high-end version for higher accuracy requirements:

• Even more precise:

Measuring accuracy: $\pm 0,2\%$ $\pm 1\text{mm/s}$

• Even more versatile electronics:

eg. optional Profibus



The cost-efficient and compact Allrounder:

• Digital or Analog:

IO-Link and 4...20 mA available

• Extremely reliable, robust, precise, and easy to operate





Precise dosing with self-learning effect: IZMSA, also certifiable (for official usage)

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
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

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

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

The benchmark for accuracy, reliability, and durability

Permanently precise flow control: FMI

The electromagnetic flowmeter FMI is an extremely versatile, robust and reliable instrument for all conductive media such as milk, cream, beer, tomato paste, sauces, molasses, yoghurt, slurries, concentrates and cleaning agents.

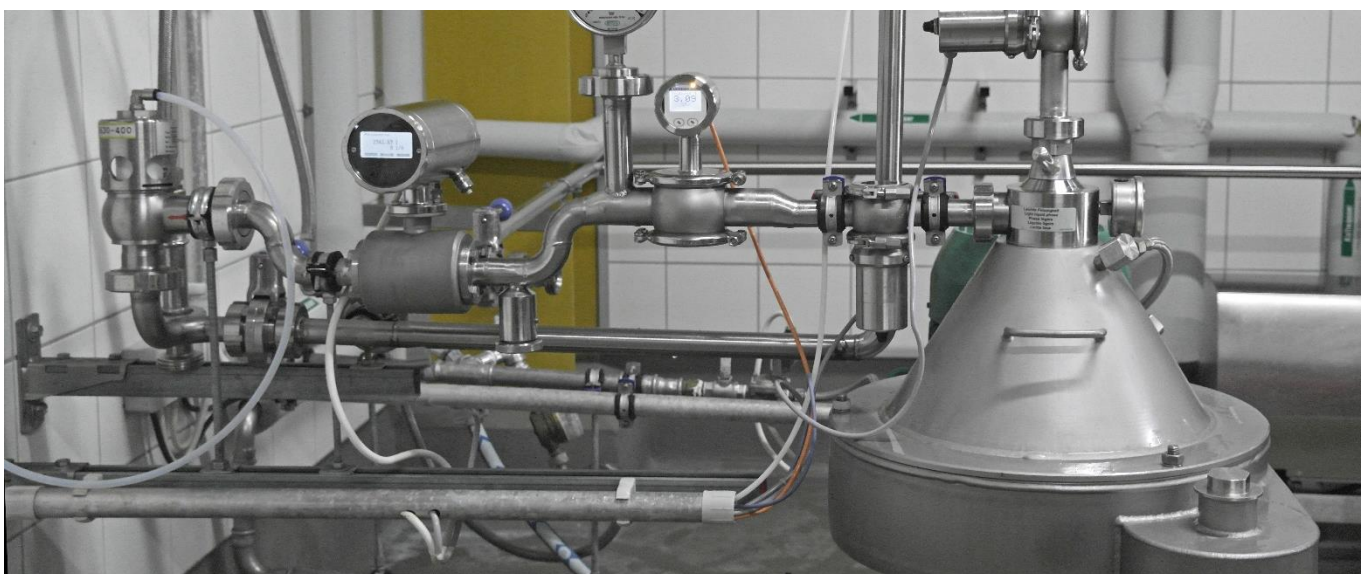
The performance spectrum is adapted to almost all applications in the food and pharmaceutical industries, also for dosing and filling applications:

- **Extremely robust:** All components are made entirely of stainless steel. The magnetic field coils of the measuring system are fully encapsulated, which guarantees reliable, precise measuring results even in very harsh environments with strong vibrations or pressure shocks
- **Extremely reliable:** Fully protected against moisture, corrosion, and vibrations; vacuum-capable measuring tube lining made of high-quality PFA, process temperature up to 165°C (remote) suitable for CIP cleaning and pigging.
- **Always accurate:** Advanced signal processing ensures that the measurement is always accurate even with a change in liquid (e.g., milk/CIP cleaner)
- **Simple commissioning and operation:** User-friendly, rotatable backlit display with optical buttons for quick and easy programming, no opening of the cap required, no mechanical buttons
- **Extremely versatile electronics:** many configurations make individual settings possible. Available options include remote electronics.



Technical Specifications at a glance

- **Measuring range from 30 l/h up to 280 000 l/h**
- **Very high accuracy: $\pm 0.20\%$ / $\pm 1\text{mm/s}$**
- **For liquids, mashies, pastes and cleaning solutions with a min. conductivity of $> 5 \mu\text{S/cm}$**
- **Process temperature up to 100°C or 163 °C with remote electronics**
- **CIP / SIP cleaning up to 130 °C / 30 minutes with integral electronics**
- **Sensor with aseptic flange, many standard process connections available**



Main application area: Food | Material: 1.4404 / AISI 316L (without 3.1 certificate)

FMI-C
FMI-R

compact version
remote version (includes 5 m coil and electrode cable as standard)

Tube standard

DIN2 DIN 11850 Series 2 - Main application area: Food - Material: 1.4404 / AISI 316L
ODT OD-Tube OD Tube (ASME-BPE) - Main application area: Food - Material: 1.4404 / AISI 316L

Nominal diameter Process connection

DIN2	ODT
10	1/2"
15	3/4"
25	1"
32	-
40	1 1/2"
50	2"
65	2 1/2"
80	3"
100	4"

Main application area: Pharmaceutical

Material 1.4435 / AISI 316L with 3.1 certificate
Order Code see Product Information

Process connection (Ⓐ: 3-A conform)

SS	weld flange Ⓐ
TC	Tri-Clamp* Ⓐ
HH	aseptic fitting DIN 11864-1 threaded side Ⓐ
GG	milk pipe fitting DIN 11851
VN	VARIVENT smooth flange
FG	FG hygienic flange, smooth flange
DF	DIN flange as per DIN EN 1092-1 Type 11 Form B, similar to DIN 2623/2633
SMS	SMS threaded connector

DIN 11850 Series 2

DIN2	SS	TC	GG	HH	DF	VN	FG
10	x	x	x	x	x		
15	x	x	x	x	x		
25	x	x	x	x	x		x
32	x	x	x	x		x	
40	x	x	x	x	x		x
50	x	x	x	x	x	x	x
65	x	x	x	x	x	x	x
80	x	x	x	x	x	x	x
100	x	x		x	x		x

OD-Tube (ASME BPE)

ODT	SS	TC	SMS
1/2"	x	x	
3/4"	x	x	
1"	x	x	x
-			
1 1/2"	x	x	x
2"	x	x	x
2 1/2"	x	x	x
3"	x	x	x
4"	x	x	x

x = process connection available for nominal width

X fixed character

Power supply

DC 9...32 V DC
AC 100...240 V AC

Electrical connection (DC version only)

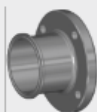
X cable gland
M12 M12-plug

FMI-C / DIN2 / 40 / SS / X / DC / M12

Process adapters



Weld flange



Tri-Clamp



Milk pipe fitting



Aseptic fitting



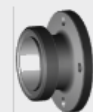
Varivent



FG hygienic flange



DIN flange



SMS threaded connector

The solution for non-conductive liquids

Flow meters for aqueous media HM-E & HMP-E

When nothing else works

The HM-E / HMP-E turbine flow meter with non-contact pulse measurements is the reliable, precise, and economical alternative for mass flowmeters or electromagnetic flowmeters.

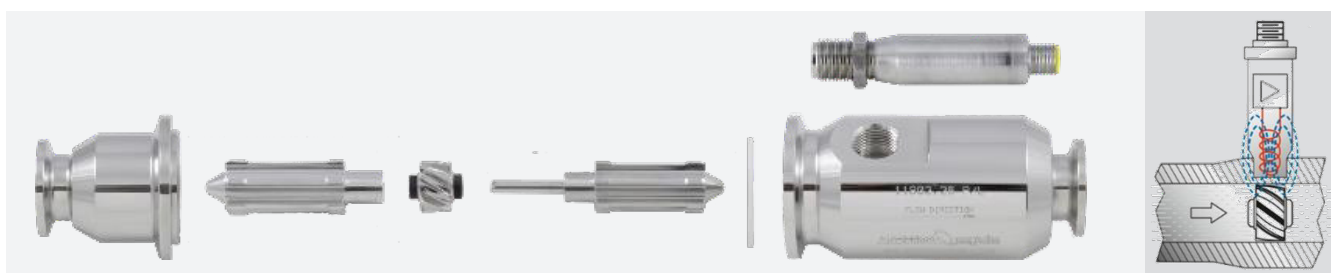
HME / HMP-E is suitable for aqueous fluids such as filtered fruit juice or beer, alcohols, light oils, salt solutions, cleaning media, and acids, but also exhaust condensate, process water, demineralized water, and WFI.

- **Compact and robust:** Massive turbine housing made of stainless steel - insensitive to thermal influences, space-saving, insensitive to vibration
- **Hygienic & 3A-compliant:** 2-piece housing, specifically designed for sanitary applications, eliminates the need for internal locking rings to retain internal components. This ensures easy cleaning and maintenance, and results in improved cleanability, straightforward design, and a lower risk of product contamination
- **Non-contact pulse measurement:** A signal probe generates an electromagnetic field that interacts with the rotating turbine rotor blades to produce a precisely measurable induction current
- **Durable:** The combination of Rulon 123™ sleeve bearing and 316L stainless steel shaft withstands even difficult process conditions, steam blowdowns and autoclaving
- **Fast:** The low mass moment of inertia of the turbine wheel ensures a fast response time of less than 50 ms. Even rapid flow rate changes can be detected without any problems
- **For Food and Life Science:** Two versions that are specifically adapted to the respective requirements of the food and pharmaceutical industries



Technical specification at a glance

- **Measuring range from 1 600 l/h (DN25) up to 56 750 l/h (DN50)**
- **Accuracy: $\pm 0,5\%$ of measured value**
- **Compact design with Tri-Clamp connection in pipes from DN25 (1") (DIN 11850 / ASME BPE)**
- **Process temperature up to 120 °C permanent**
- **CIP-cleaning without time limit / SIP-cleaning up to 135 °C (275 °F) , max. 120 min.**
- **Continuous operation** through easy rotor replacement and recalibration
- **For media with max. viscosity 100 cP and particle size < 20 μm**





The solution for aqueous, non-conductive media and WFI: HM-E / HMP-E

Order Code			
HM-E	(Turbine flowmeter for food applications; additionally required: signal probe HTE000)		
HMP-E	(Turbine flowmeter for pharmaceutical applications; additionally required: signal probe HTE000)		
	Tube nominal width		
	025	(DN25 / 1")	
	040	(DN40 / 1½")	
	050	(DN50 / 2")	
		Tube standard	
		1	(DIN 11850 Series 2 or DIN 11866 Series A)
		2	(ASME BPE)
		Model	
		00	(standard)
		01	(3/4" NPT threaded connection for integral display)
HMP-E	050	1	00

Technical data HTE		
Signal probe HTE000	Process	Max. 120 °C (248 °F, higher temperatures on request)
	Environment	-40...+85 °C (-40...185 °F)
	Measuring principle	Eddy current
	Mechanical connection	5/8"-18 (UNF-20)
	Supply voltage	8...24 V DC; 0.8 watt max.
	Electrical connection	M12
	Signal cable	3-core, shielded, max. 150 m
	Signal	PNP pulse output, unscaled
		Duty cycle (low/high): 60:40
		V _{max} = supply voltage - 0.7 V
		V _{min} = 0.5 V
	Frequency range	0...1000 Hz, depends on flow rate and nominal width
	Output unit	Pulses per volume

Pharmaceutical version (HMP-E)

- Material specification in agreement with ASME BPE standards
- Surfaces with product contact are electropolished ($R_a \leq 0.5 \mu\text{m}$)
- Certificates are included with the delivery: materials, calibration, USP Class VI for Rulon™ and sealing materials

Optional:

- Measurement protocol for surface roughness and delta ferrite content

The solution for all aqueous, even high-purity media

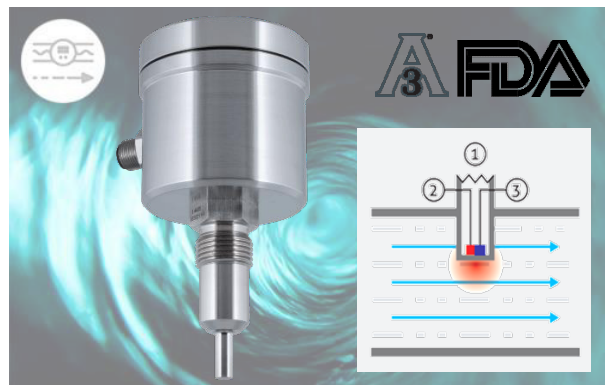
FTS - Reliable flow control for all media

Flow switches are used in almost all processes to monitor the **technical safety of the plant** and the **correct operation of the processes**. A possible malfunction of a pump, a closed valve or a misdirected medium are **detected and reported**.

FTS: The calorimetric flow switch with special benefits

Its special pulsed measurement method heats in short periods and detects the flow velocity quickly, reliably and permanently just by measuring the temperature change of the medium.

- **Ideal for all aqueous products:** Also for demineralised and highly filtered media such as cola and other soft drinks, filtered beer, demineralised water, as well as for media in pressure lines
- **Process temperature up to 100 °C (212°F):** FTS is perfectly suited for all usual processes and media
- **Fast:** Due to the very slim sensor tip and the position of the heating element and Pt100 sensor directly at the fluid, the FTS has an extremely short response time for a calorimetric sensor
- **Insensitive to temperature shocks:** temperature changes due to e.g. cold product, hot water, CIP solutions have no influence on the measurement
- **Versatile:** Ideal for monitoring pump systems, valves, filters, agitators, cooling circuits, CIP return flow...



Technical data FTS at a glance

- **For all aqueous media** (water content $\geq 50\%$)
- **Measuring range 0,1...3 m/s**
- **Robust stainless-steel design**, protection class IP69K
- **Long-life Technology** for process temp. up to 100 °C (212°F), integrated safety switch-off
- With **type FTS** the **switching output** is adjustable in % of the flow rate.
- **CIP / SIP** up to 140 °C (284°F) / max. 60 min

Order code CLEANadapt G1/2" process connection

FTS-141 Calorimetric Flow Sensor with switch output, CLEANadapt G1/2" process connection

Cap

- X** (Plastic without window)
- P** (Plastic with control window)
- M** (Metal without control window)
- W** (Metal with control window)

FTS-141 / X

The temperature independent problem solver

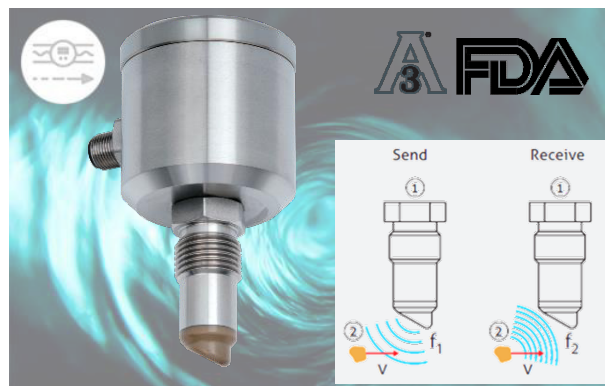
FWS/FWA - Reliable flow control for all media

Flow switches are used in almost all processes to monitor the **technical safety of the plant** and the **correct operation of the processes**. A possible malfunction of a pump, a closed valve or a misdirected medium are **detected and reported**.

FWS/FWA ultrasonic flow monitor for aqueous and non-aqueous media

Many flow monitors are only suitable for aqueous media. In contrast, the FWS, thanks to its ultrasonic Doppler measuring principle, is ideal for all media displaying the slightest turbidity or air bubbles.

- **For media where other flow switches do not work:** e.g. dough, glycol, oils and oil-based fluids, creams, adhesive or viscous media, but also drinking water, milk, juice (unfiltered) and CIP media
- **Extremely fast:** The response time of < 1 second provides maximum system security through error signals in real time
- **Temperature independent:** Temperature changes as for example cold product - hot water - CIP solutions have no influence on the measurement
- **Versatile:** Ideal for monitoring pump systems, filters, agitators, cooling circuits, CIP return flow...



Technical data FWS / FWA at a glance

- **For all media** with turbidity > 1 NTU or particle size > 50µ
- **Measuring range** 0,1...2,5 m/s,
- **Response time** < 1s
- **Long-life Technology** for process temperatures and CIP / SIP up to 100 °C (212°F) continuously
- With **type FWS** the **switching output** is adjustable in % of the flow rate.
- **The type FWA** offers with 4...20 mA an analogue **output for the flow rate** (measuring accuracy ±10%). In many applications this accuracy is sufficient to economise a highly accurate and expensive flowmeter.

Order code

FW Ultrasonic flow switch CLEANadapt G1/2"

Signal output

S-141 (with switch output)

A-141 (with analog output)

Display and closing cap

X (stainless steel cap without window)

AZM (stainless steel cap with window and LC display)

KF (stainless steel cap with control window and LED)

X

Fixed value

Electrical connection

X (cable gland M16x1.5)

M12 (M12 connector)

FW **A - 141 /** **AZM /** **X /** **M12**

SENSORS FOR FOOD AND LIFE SCIENCES.



SANITARY BY DESIGN

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ANDERSON-NEGELE

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