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EASZ 3000 Doppler Flowmeter

- LCD Display
- User friendly set up menu
- Flow Rate and Total
- Weatherproof IP 66 Rated Enclosure
- Easy to install, economical and compact
- Zero pressure drop
- No sensor fouling
- Pipe sizes 1 inch to 118 inches
- Adjustable high and low trips
- Adjustable relay
- Cut off flow
- Analog Output
- Long sensor cable lengths with Pre-amp option

Description:

The EASZ-3000 is a mains powered non-invasive microprocessor based meter for measuring the flow rate and total volume of liquids flowing through process and effluent pipelines. It is suitable for a wide range of liquids, including aerated water, liquids containing suspended solids, slurries and sludges. The EASZ-3000 requires fluids with a minimum concentration of 100 ppm of solids or bubbles having minimum size of 100 microns and works on most pipes 1 inch and above.

The flowmeter utilises the non-intrusive Doppler principle to measure the mean velocity and is particularly useful as a fixed flow ndicator or as a working tool to establish flow conditions in field or plant installations. Units of measurement available are m/s, ls, lm, h, m3/sec, m3/m, m3/hr, ft3/h, ft3/s, usgps, usgpm, usgph, usmgd. The unit has built in logic to cut off measurement of flow readings on applications which are not suited for Doppler measurement. Each unit is factory calibrated and ready to install and measure flow rates within seconds.

Applications

Slurries	Digested sludge
Dredging	Thickened sludge
Pulps	Waste activated sludge
Primary sludge	Return act ivated sludge

Features

Microprocessor controlled	AC or DC Voltage options
Programmable	Analog Output (adjustable)
Easy to use	Relay Output
Flow total and rate display	Weatherproof Sensors and Casing

Specifications:

Measuring Range	Velocity Range 0.3 to 10.0 m/s Accuracy better than ±2% of FS View Volumetric Flow Rate and Total
Set Points	0 to 100% of Range
Output	Active 4-20mA signal 24V DC pulse Programmable Relay
Transducer Cable	10ft length (pre-amplifier option allows increased lengths with standard coax cables)
Temperature	Steel Sensor -4 to 194 °F
Electronics	IP66 to EN 60529.
Enclosure	Material Si 12, DIN 1725. Surface treatment powder coating
Power Input	115/230V ac, 50Hz/60Hz 24V dc +/-10%
Transducer	IP68 St/Steel 3.1 x 0.9 x 0.8 inches with fixed clamping fixtures
Indication Display	Indication 2 - Line 16 Character
Weight	Approximately 10lb

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EASZ 4000 Series
Portable Transit Time Ultrasonic Flowmeter

- Ultrasonic flowmeter waterproof crush proof case
- Easy to install clamp-on sensors with no process interruption
- Non-invasive flow measurement of liquids, no pipeline disturbance, no pressure loss
- Suitable for all commonly used pipe
- Standard Pipe version and Large Pipe versions with 10 hour Internal Battery

Description:
The 4000 Series range of non-invasive flowmeters utilises ultrasonic technology for the accurate flow measurement of liquids in full pipes.

The portable transmitter can be configured via the keypad without any additional programming devices and is available as single channel unit.

The measurement of flow is based on the principle that soundwaves are influenced by a flowing medium.

Measurements are made by penetrating the pipe with ultrasound, and subsequently: time differences, frequency variations and phase shifts of the ultrasonic signals are evaluated. This measuring technique has no effect on the flowing liquid. There is no pressure loss in the pipe and no wear on components of the measuring device.

The ultrasonic sensors are clamped onto the outside of the pipe, thus eliminating the need to dismantle the pipework and interrupt the process.

The 4000 Series can be applied to any type of standard pipe carrying clean or dirty liquids.

Advantages
- Low installation effort and costs
- Measurement is independent of fluid conductivity and pressure
- No pressure loss, no possibility of leakage
- Retrospective installation for existing plants possible
- No cutting of pipes necessary, no process interruption, no plant shut down
- No additional fittings for maintenance required
- Hygienic measurement, no risk of contamination, suitable for ultra clean liquids
- No contact with medium, no risk of corrosion when used with aggressive media
- Cost advantages when used with large diameter pipes, high pressure systems, etc.

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ULTRASONIC FLOWMETER EASZ-6000 Series

- Portable dual mode flowmeter
- Easy to install clamp-on sensors with no process interruption
- Non-invasive flow measurement of liquids, no pipeline disturbance, no pressure loss
- Suitable for all commonly used pipe materials with pipe diameters from 6 mm to 6.5 m (1/4" to 256")
- Integrated wall thickness measurement, 2 flow channels

Description:

Our range of non-invasive flowmeters utilises ultrasonic technology for the accurate flow measurement of liquids in full pipes.
The portable device has been designed to meet the needs of the Service / Maintenance and Commissioning Engineer wishing to check the flow rate of liquids at different locations in the plant.
The set-up of the unit is simple and user friendly in order to obtain the required flow information in minutes.
The measurement of flow is based on the principle that sound waves are influenced by a flowing medium. Measurements are made by penetrating the pipe with ultrasound and subsequently time differences, frequency variations and phase shifts of the ultrasonic signals are evaluated.
The ultrasonic sensors are clamped onto the outside of the pipe, thus eliminating the need to dismantle the pipework and interrupt the process. The EASZ 6000 Series can be applied to any type of standard pipe carrying clean or dirty liquids

Advantages

- Low installation effort and costs
- Dual measuring mode (transit-time and doppler)
- Measurement is independent of fluid conductivity and pressure
- No pressure loss, no possibility of leakage
- Retrospective installation for existing plants possible
- No cutting of pipes necessary, no interruption of process, no plant shut down
- No additional fittings for maintenance required
- Hygienic measurement, no risk of contamination, suitable for ultra clean liquids
- No contact with medium, no risk of corrosion when used with aggressive media
- Cost advantages when used with large diameter pipes, high pressure systems, etc

Specification

General

Measuring principle	Ultrasonic time difference correlation principle and doppler
Flow velocity range	0.01 ... 25 m/s
Resolution	0.025 cm/s
Repeatability	0.15 % of measured value ± 0.01 m/s
Accuracy	Volume flow : ± 1 ... 3 % of measured value depending on application ± 0.5 % of measured value with process calibration Flow velocity: ± 0.5 % of measured value
Turn down ratio	1/00
Gaseous and solid content of medium	< 10 % of volume

Flow Transmitter

Enclosure	Portable
Degree of protection	IP 54 according EN 60529, IP 68 optional
Operating temperature	-10 ... 60 °C (14 ... 140 °F)
Housing material	Aluminium, powder coated
Flow channels	2
Power supply	Internal rechargeable battery, 6 V/4 Ah, or external power supply 9... 15 V DC
Operating Time	> 14 h with fully charged battery
Display	2 x 16 digit LCD , dot matrix, backlit
	(with handle)
Weight	3,5 kg
Power consumption	< 2,5 W in measurement mode
Signal damping	0 ... 60 s, configurable

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Flow transmitter

Response time	1 s, 70 ms optional
Measuring cycle	100 ... 1000 Hz, single channel
Calculation functions	Average / difference / sum
Operating languages	Selectable between Danish, English, German, French, Dutch, Norwegian, Polish, Czech, Turkish

Quantity & units of measurement

Volumetric flow rate	m^3/h, m3/min, m^3/s, l/h, US gph, bls/d (barrels per day)
Flow velocity	m/s, inch/s
Mass flow rate	g/s, t/h, kg/h, kg/min
Volume	m^3, l, gal (US gallons), bbl
Mass	g, kg, t
Heat flow	W, kW, MW (only with heat quantity measurement option)

Internal data logger

Storage capacity	Approx. 27000 (optional > 100000) measuring values
Logging data	All measured and totalised value, parameter sets

Communication

Serial interface	RS 232
Data	Instantaneous measured value parameter set & configuration logged data

Software EESIDATA

Functionality	Downloading of measured values/parameter set, graphical presentation, list format, export to third party software, on-line transfer of measured data
Operating system	Windows 3.11, 95, 98, NT

Process Inputs	Galvanically isolated from main electronics
Temperature	PT 100, four wire circuit Measuring range -50 ... 400 °C
Current	0 ... 20 mA, R= 50 ?
voltage	0 ... 1 V, R = 1M?

Process Outputs	Galvanically isolated from main electronics
Current	0,25. 20 mA, passive (U_{ext} < 24 V) or active (R_{ext} <500?)
Voltage	0..1 V or 0..10 V R=500 ?
Frequency	0..1 kHz or 0..10 kHz, (OC)
Digital (pulse, status)	Totaliser value 0.01..1000/unit, width 80..1000 ms, (OC/Reed) Reed = Reed-NO contact (300 V / 0.5 A) OC= Open-Collector

Clamp-on sensors

Type M2N, M2E

Rated (possible)	
Diameter range	(50) 100 ... 6500 mm
Dimensions	60 x 30 x 34 mm
Material	Stainless steel
Temperature range	*Type M2N:* -30 ... 130 °C (-22 ... 266 °F) *Type M2E* -30 ... 200 °C (-22 ... 392 °F), for short periods up to 300 °C (572 °F)
Degree of protection	IP 65 according to EN 60529, IP 68 optional

Type Q3N Q3E

Rated (possible)	
Diameter range	(10) 25 ... 400 (1000) mm
Dimensions	43 x 18 x 22 mm
Material	Stainless steel
Temperature range	*Type Q3N* -30 ... 130 °C (-22 ... 266 °F) *Type Q3E* -30 ... 200 °C (-22 ... 392 °F) for short periods up to 300 °C (572 °F)
Degree of protection	IP 65 according to EN 60529 IP 68 optional

Special clamp-on sensors

Type S2N	For very small pipe diameters 6 ... 40 (100) mm
Other types	On request

Wall thickness measurement

Measuring range	1.0 ... 200 mm
Resolution	0.01 mm
Linearity	0.1 mm
Temperature range	Standard version -20 ... 60 °C High temperature version 0 ... 200 °C, for short periods up to 540 °C

Accessories

External power supply 230 V, 50Hz/12 V, 1.2 A; IP 30
Car power adapter 12 V, 2 A
Leather carrying case 330 x 340 x 220 mm
Cable extension 3 m, 5 m, 10 m or 20 m
Sensor positioning rail for sensors type Q3, stainless steel V2A
External printer, ink jet 192 dpi

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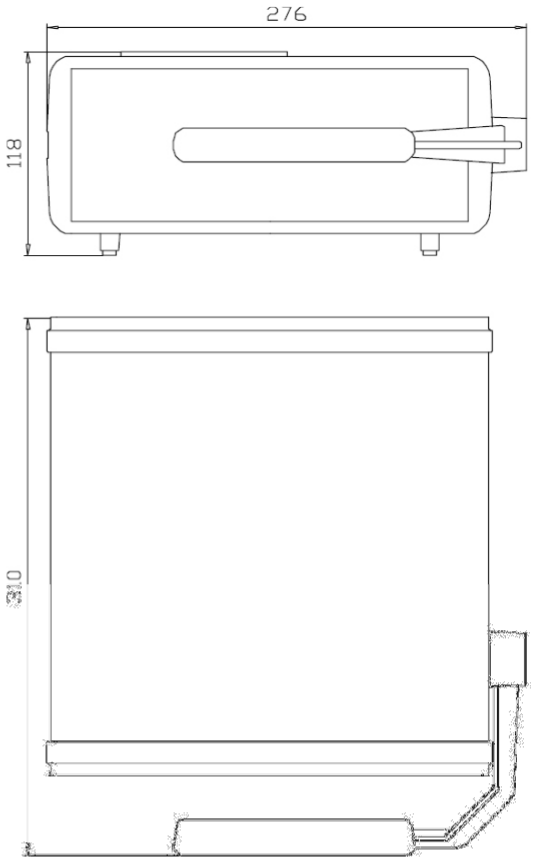
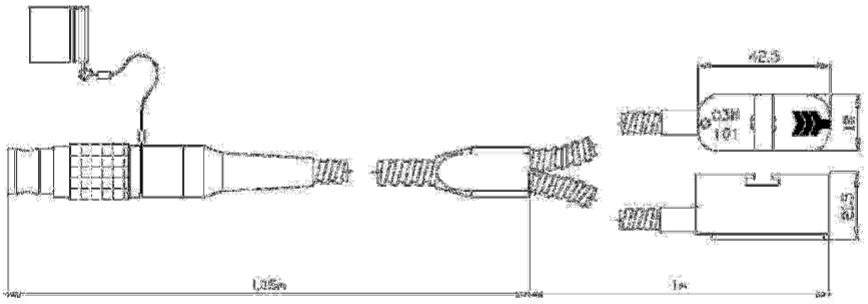
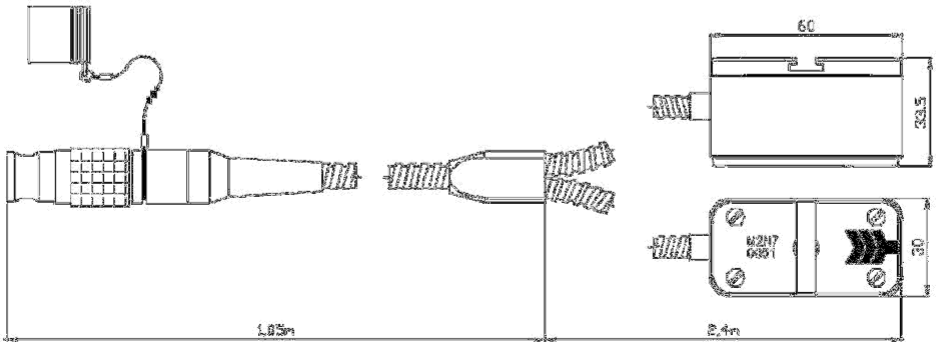
External dimensions

Portable flow transmitter
6000 Series





Clamp-on sensors type Q3N-7-P002



Clamp-on sensors type M2N-7-P003

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