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höntzsch
flow measuring technology

ExactSonic II

Portable Ultrasonic Flow Meter
for Liquids

Clamp On - Measure - Finished!

Principle of operation
Non-invasive transit time ultrasonic flow rate measurement. See data sheet for further details.

Advantages
- exact measuring results in just a few minutes
- easy to use
- process/flow does not have to be discontinued
- no obstruction in the cross section and no pressure loss
- time and cost saving since no assembly needed

Applications
Flow rate measurement in liquid-filled ducts; HVAC systems; inspection of pumps and technical systems; boiler tests; leak detection; filter sizing; ultrapure water measurement, fire and hydraulic system testing

Application sectors
Water management, building services, energy management, power generation, chemical and pharmaceutical, food technology, petrochemical

Measuring mediums
Demineralised water, drinking water, river water, water-glycol mixtures, hydraulic oil, diesel and fuel oils, petroleum products

Technical data
- flow velocity range 0.2 ... 20 m/s
- +/- flow direction sensing
- measurement uncertainty:
  pipe OD > 75 mm: ± 2 % of meas. value for v > 0.2 m/s
  pipe OD 13-75 mm: ± 3 % of meas. value for v > 0.2 m/s
- menu-oriented operation
- 64 x 240 pixels graphic display, backlighted
- programming via 16 key control panel
- battery and mains operation
- battery life up to 20 hours
- power supply 110 ... 240 VAC +/-10 %
- 9 user selectable languages: English, German, French, Italian, Dutch, Swedish, Norwegian, Portuguese, Russian
- incl. two sensor pairs 'A' & 'B':
  pair 'A' for pipe OD 13 ... 115 mm
  pair 'B' for pipe OD 50 ... 2000 mm
- sensor working temperature range: -20 ... +135 °C
- outputs 0/4-20 mA, RS232/USB, opto isolated, pulse output 5 V, max. 1 pulse/s
- data logging: 98000 data points, 20 named record blocks, data displayed locally as text or graph format, can be downloaded via RS232 or USB port to Windows based PC
- delivery with robust IP67 carrying case

Display Unit ExactSonic II


Sensor rail assembly


Scope of delivery with IP67 carrying case

Do you want to know more? Then contact us for further information such as data sheets or specifications.

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Appendix A

GENERAL	
DSL Measurement Technique	Transit time
Time resolution	50 picoseconds, continuous signal level indication on display
Flow velocity range	minimum velocity 0.2 m/s, maximum velocity 20 m/s, ± bi-directional
Turn down ratio	100 : 1
Measuring uncertainty	±2 % of measured value for v >0.2 m/s and pipe ID >75 mm ±3 % of measured value for v >0.2 m/s and pipe ID in the range of 13 ... 75 mm
Repeatability	±0.5 % of actual value or ±0.02 m/s, whichever is greater
Reynolds number correction	Flow velocity corrected for Reynolds number over entire velocity range
Reaction time	< 500 ms depending on pipe diameter
Selectable flow units	Velocity: m/s, ft/s Flow rate: l/s, l/min, l/h, gal/min, gal/h, USgals/min, USgals/h, barrel/h, barrel/day, m³/s, m³/min, m³/h
Selectable quantity/volume units	l, gal, USgals, barrel, m³
Total volume	12 digits - forward and reverse
APPLICABLE FLUID TYPES	
Fluids	Clean liquids that have less than 3 % by volume of particulate content. Applications include river water, sea water, potable water, demineralised water, glycol/water mix, hydraulic systems and diesel oil
APPLICABLE PIPE TYPES	
Pipe materials	Any sonic conducting medium such as carbon steel, stainless steel, copper, UPVC, PVDF, concrete, galvanised steel, mild steel, glass, brass, including lined pipes - epoxy, rubber, steel, plastic
Pipe dimensions	13 ... 2000 mm
Pipe wall thickness	1 ... 75 mm
Pipe lining material	Rubber, glass, concrete, epoxy, steel
Pipe lining thickness	0 ... 25 mm
Working temperature range of pipe wall	-20 ... 135 °C

TRANSDUCER SETS	
Standard	'A-ST' (standard) 13 ... 115 mm pipe OD (2 MHz) 'B-ST' (standard) 50 ... 2000 mm pipe OD (1 MHz) Working temperature range: -20 ... +135 °C
DATALOGGER	
Data logged	Log application details, flow rate logs data selected in setup, e.g. l, gals, USgals, m³
No. data points	98000
Time stamping	All data points are time stamped
No. sites	20 sites
No. of data points per site	All free memory can be allocated to any site up to a max of 98000 data points
Programmable logging interval:	5 ... 3600 s – Updating on screen the end time of memory remaining as sample units are selected. At overflow overwrite old data - or user selectable stop logging when memory is full. Logged data downloadable to PC via USB cable or RS232
LANGUAGES	
Standard Supported Languages:	English, German, French, Italian, Spanish, Portuguese, Russian, Norwegian, Dutch, Swedish
OUTPUTS	
USB interface:	supports USB 2.0 full speed mode (12Mbits/s), USB software driver provided
Printer/terminal: Serial RS232-C incl. handshaking	
Analog output Resolution Alarm current range Isolation Max. burden	4–2 0mA, 0–20 mA, 0–16 mA 0.1 % of full scale 0 ... 26 mA 1500 V optoisolated 620 Ohm
Pulse output TTL Pulse repetition rate Pulse frequency	optoisolated solid state relay, 150 mA up to 500 pulses/s up to 200 Hz

ELECTRICAL	
Supply voltage	
Input voltage range	9 ... 24 VDC
Power consumption	10.5 W
Battery	
Technology	5-cell NiMH
Capacity	3.8 Ah
Operating time	typically 20 h (w/o backlight and 4-20 mA OFF)
Recharge time	6.5 h
Service life	>500 charge/discharge cycles
Power supply/charger	
Manufacturer	ECOPAC Model ECO-181WP12
Input voltage range	90 ... 264 VAC
Input frequency range	47 ... 63 Hz
Output voltage	12 VDC
Max. output current	1.5 A
Approvals	UL, CUL, TÜV, CB & CE
MECHANICAL	
Carrying case	
Material	lame retardant injection moulded ABS
Dimensions	264 x 168 x 50 mm
Weight (incl. battery)	1.1 kg
Protection	IP54
Keypad	
No. Keys	16
Display	
Format	240 x 64 pixel graphic display, high contrast black-on-white, with backlight
Viewing angle	min. 30 °, typical 40 °
Carrying case	
Rating	all components are contained in a hard-wearing IP67 rated carrying case with a protective moulded foam insert
ENVIRONMENTAL	
Working temperature range	-20 ... 50 °C
Storage temperature range	-25 ... +65 °C
Operating humidity	max. 90 % at +50 °C
APPROVALS	
Safety	BS EN61010
EMC	BS EN 61326 - 1:2006, BS EN 61326-2-3:2006
Battery charger	EN61204 - 3.
SHIPPING INFORMATION	
Box dimensions	441 x 205 x 355 mm
Weight	7.5 kg
Volumetric Weight	5 kg

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CE Declaration of Conformity

We, Höntzsch GmbH
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herewith declare, that the product

ExactSonic II
Ultrasonic Flow Meter

is manufactured in accordance with the following Directives and Standards.

Directive 2004/108/EG of the European Parliament and of the Council of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility.

Directive 2006/95/EG of the European Parliament and of the Council of 12 December 2006 on harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits.

EN 61010-1:2001 Safety requirements for electrical equipment for measurement control and laboratory use. Part 1: General requirements.

EN61326-1: 2006 Electrical equipment for measurement control and laboratory use EMC requirements. Part 1: General requirements.

EN61326-2-3: 2006 Electrical equipment for measurement control and laboratory use EMC requirements. Part 2-3: Particular requirements - Test configuration and performance criteria for transducers with integrated or remote signal conditioning.

(Included accessory battery charger not manufactured by Höntzsch GmbH complies with standard EN61204-3)

Waiblingen, 22.07.2010

Thomas Itte
legally binding signature