Ultrasonic Portable Flowmeter

MINISONIC® P

An advanced portable flowmeter incorporating over 30 years of practical field experience

Suitable for pipes from 10 to 3300 mm diameter

- ✓ Non invasive external probes clamped on to the pipe
- ✓ Easy and quick installation
- ✓ User friendly operation, set up by keypad or software
- ✓ Automatic control of ultrasonic signal using the ESC mode (Echo Shape Control)
- ✓ Automatic zero flow adjustment with “anti air bubble” signal processing
- ✓ Robust, watertight (IP67) control unit enclosure
- ✓ Very lightweight: less than 1kg
- ✓ Battery life: up to 40 hours continuous operation
- ✓ Very high accuracy and sensitivity: measurements from 0.001 m/sec to 99 m/sec
- ✓ Probes available from -100ºC to +200 ºC (pipe temperature)

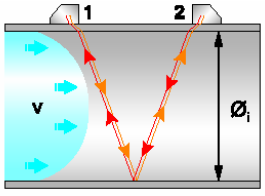
Principle *

The MINISONIC P calculates the (v) speed and the (Q) flow of the fluid by the measurement of the (Δt) difference of the transit times of ultrasonic waves ($t_{21} - t_{12}$):

$Q = f(\varnothing_i, t_{12}, t_{21})$

$\Delta t = t_{21} - t_{12} = Kv$

with K : proportion coefficient



* The fluid should be suitable for the propagation of ultrasound

Typical Applications *

- Flows in all water applications: network (potable water, raw water, sewage) – pump metering
- Flow of various oil products – refined – crude oil – multi-product pipelines
- Petrochemical and food industries, process metering and control
- Climate and hydraulic engineering – network balancing - performance

* With exception for two phase or high viscosity liquids

Ultraflux
Ultrasonic Measurements

Represented by:

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flowline
SPECIALISTS IN FLOW MEASUREMENT

SYSTEM DESCRIPTION

MINISONIC P uses the very latest electronic technology combined with highly efficient digital signal processing (D.S.P.) technique which maximises the system performance giving the user significant benefits. MINISONIC P gives outstanding measurement capability including the ability to adapt its operation to suit the most challenging site conditions. The system consists of a hand-held control unit and two probes with support and cables.

SPECIFICATION

- 2 lines LCD display – 16 characters – programmable - backlight
- Ergonomic keypad and menu configuration – access code if needed
- Analogue output (x2), relays (x2) and R/S 232 (or 485)
- High resolution time measurement <0.1 ns
- Dynamic gain up to 89 dB
- Echo analyser with automatic control (ESC mode)
- Multiparameter : flow, speed, gain, signal quality ratio, etc.

ESC MODE AND AUTOMATIC ZERO FLOW

To achieve accurate flow readings, proper probe selection and installation are required.

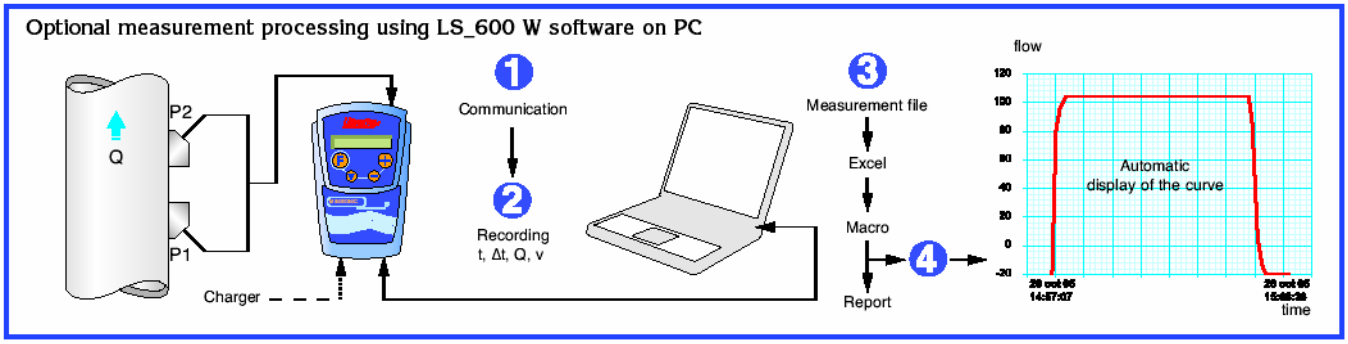
The ESC mode acts as an “auto focus” for the ultrasonic signals in order to optimise the acoustic signal.

Zero offset adjustment at no flow conditions is not necessary, nevertheless auto zero function can still be used.

LCD screen (with backlight)

PERFORMANCE

- Typical accuracy following dry calibration : 0.5% (DN > 100 mm), linearity on test loop : 0.1 %, repeatability 0.05 %
- Practical accuracy with common liquids (water, etc)
  DN ≤ 100 mm: +/- 2% if v > 0.3 m/s if not +/- 5 mm/s
  DN > 100 mm: +/- 1% if v > 0.3 m/s if not +/- 2 mm/s
- Built-in correction for multi-product or for laminar/turbulent transitions flow
- Bi-directional measurement
- Volume metering. Choice of units from 0.001 to 100 m3
- Choice of probes installation: /, V, N and W modes



ELECTRICAL SPECIFICATION

- A CE product
- Internal battery 12 V – NIMH non pollutant
- Charger 90 V – 260 V AC – 12 to 14 h charging External supply option
- Isolated output current 4-20 mA – 250 Ohm
- Static relay 100 V – 100 mA (x2)

KIT DESCRIPTION

MINISONIC P kit includes:

- 1 carrying bag for MINISONIC P, including pocket for cable (1=2.5m, for pipes of approx ID 800 mm)
- 1 charger, 1 PC cable and software LS_600W (disk or CD)

Extra : probes and attaching system stored in separate carrying bag or case with a coupling agent

Optional accessories include :

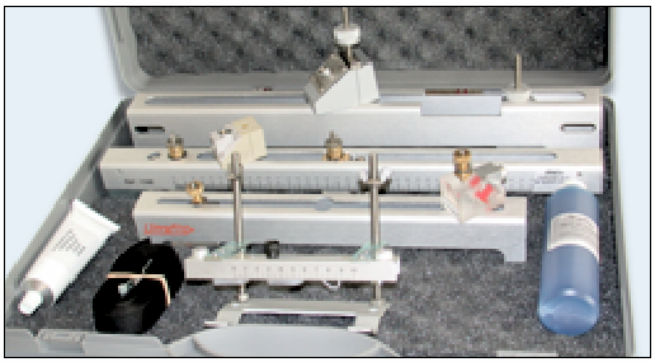
- Extra cable length for probes 1=5m for ND ≥ 500mm
- External data logger with software

MECHANICAL SPECIFICATION

- ABS enclosure with carrying pocket
- Dimensions: 220 x 115 x 64 mm (L x H x D)
- Converter weight : 850 g
- IP67 protection against dust and immersion
- Use temperature : -10ºC to +50ºC

PROBES AND SUPPORTS

Ultraflux offers a large range of conventional technology and microstructure technology probes with supports, designed for easy and secure installation.



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