MINISONIC® 600 - 2000 - SPEED - G

A range of ultrasonic flowmeters

Single or dual chord and dual pipe versions

MINISONIC® 600
MINISONIC® 2000
MINISONIC® G
MINISONIC® SPEED

Pipe sizes from DN 4 to DN 600 mm (liquids)

Pipe sizes up to 3300 mm (liquids)

Gas volume metering, DN size depending on pressure

Open channel velocity measurement

- ✓ Non-Invasive (clamp-on) probes (except G version) or intrusive (wetted) probes or spools
- ✓ Water resistant to IP 67
- ✓ On site “dry” calibration possible
- ✓ Automatic echo adjustment with ESC mode (Echo Shape Control)
- ✓ Low cost simple installation
- ✓ Virtually no maintenance required
- ✓ High accuracy with no time drift
- ✓ Security of totalizations-Security locked of the converter cabinet with seals

Principle

The MINISONIC calculates the speed, (v) the flow (Q) and the volume (Vol) of a fluid by measuring the (Δt) difference of transit time of ultrasonic wave ($t_{21} - t_{12}$)

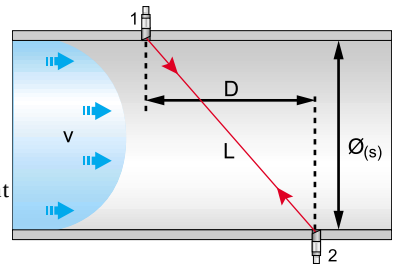
$\Delta t = t_{21} - t_{12}$

$v \approx \Delta t \times c^2 / (2 \times D \times Kh)$

$Vol = Q \times t$

C : speed of sound in the fluid

Kh : hydraulic coefficient



Typical applications *

- Water flow of all types of water : Network (potable water, waste water) – Pumping - Metering.
- Flow of various oil products – Refined – Crude oil– Multiproduct pipelines.
- Petrochemical and food industries process.
- Replacement of outdated equipment - retrofitting.

* With exception for two phase or high viscosity liquids

Represented by :

Ultraflux

Ultrasonic Measurements

DESCRIPTION

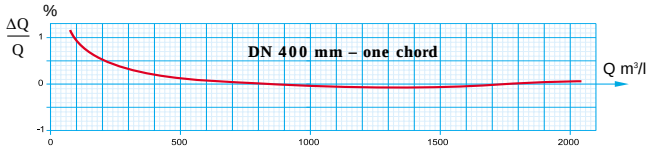
Its new electronics allows MINISONIC to suit all cases, and this, thanks to an enhanced emission power, a greater received gain, a better noise rejection (+20 to 30 dB at final) and a new digital signal and measurement processor.
A single chord metering unit consists of one convertor, two probes with supports and cable.
A dual chord version (two speed measurements on the same pipe) is adaptable to hydraulical disturbances.
A dual pipe unit allows the flow measurement on two different pipes.

RESOURCES

- ❍ 2 lines LCD display - 16 characters - Programmable backlight.
- ❍ Ergonomic keypad and menu driven configuration - access code if needed.
- ❍ Dynamic gain up to 89 dB.
- ❍ High resolution time measurement < 0.1 ns
- ❍ Echo analyser with zero flow automatic control (ESC mode): automatic mode when commissioning
- ❍ Multiparameter : Flow, speed, gain, signal quality ratio
- ❍ Windows software PC LS_600 W for extended calibration, expertise and data saving.

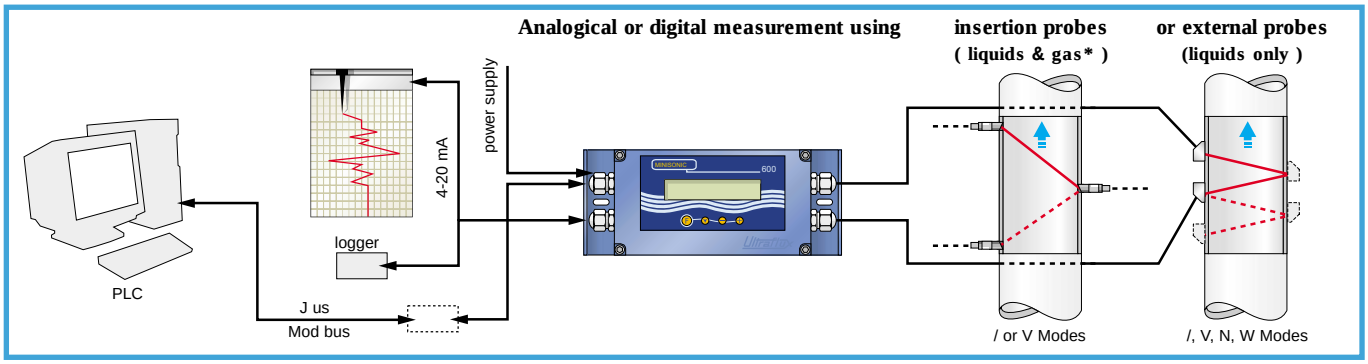
ESC MODE AND AUTOMATIC ZERO FLOW

The best accuracy would be achieved by a proper selection of probes together with a strict installation.
Good hydraulic conditions must be obtained :
upstream straight length >20D minimum.
The ESC mode which acts as an 'Auto focus' for the ultrasonic signals in order to optimise the global acoustic adjustment to ensure proper results.



PERFORMANCES

- ❍ Single chord system
  - Typical accuracy following dry calibration : 0.5 % (DN > 100 mm).Calibration curve can also be linearized
  - Practical uncertaincy with common liquids (water,...) :
    - 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
- ❍ Repeatability on test loop : 0.05%
- ❍ Bi-directional measurement +/- 15 m/s
- ❍ Volume metering. Choice of unit from 1 cl to 100 m3
- ❍ Built-in correction for multiproduct or for laminar/turbulent transitions flow.



* limited depending on site conditions

ELECTRICAL CHARACTERISTICS

- ❍ A CE product
- ❍ Power supply : 9 to 36 VDC (option : 48 V) or 7 to 25 VAC - extra : external transformer 110 V or 230 VAC .
- ❍ Isolated output current 4-20 mA (x2) - 1500 Ohm depending on supply current - active output wiring available.
- ❍ Static relay (x2) 100 V/100 mA/10 VA max
- ❍ RS 232 or 485 output, 9600 Bauds maximum or JBus/ModBus protocol

Certifications

MINISONIC EXD : EEX d IIC T6 – LCIE 03 ATEX 6183
Probes EEx m II T6 – LCIE 03 ATEX 6182X
EEx me II T6
EEx md IIC T6
Probes EEx ia II T6 – LCIE 03 ATEX 6180X
Ultrasafe zener barrier BZ01 : [EEx ia] IIB T6 – LCIE 03 ATEX 6181X

MECHANICAL CHARACTERISTICS

- ❍ Aluminium cabinet – epoxy coated.
- ❍ IP 67 protection – Ambient T° = - 25 + 50 °C
- ❍ Size - Weight :
  -Industrial type : 237 x 108 x 79 mm - 1.5 Kg
  (Wall or pipe mounting)
  -Ex proof type (lxHxP) : 244 x 130 x 232 mm - 6.6 Kg
- ❍ Large range of probes IP 55 to IP 68, insertion or external - Industrial support.

Ultraflux
Le Technoparc 17, rue Charles Edouard Jeanneret - 78306 POISSY Cedex- France
Tel : +33 1 39 79 26 40 - Fax : +33 1 39 79 91 22 - e-mail : ultraflux@ultraflux.fr
www.ultraflux.com