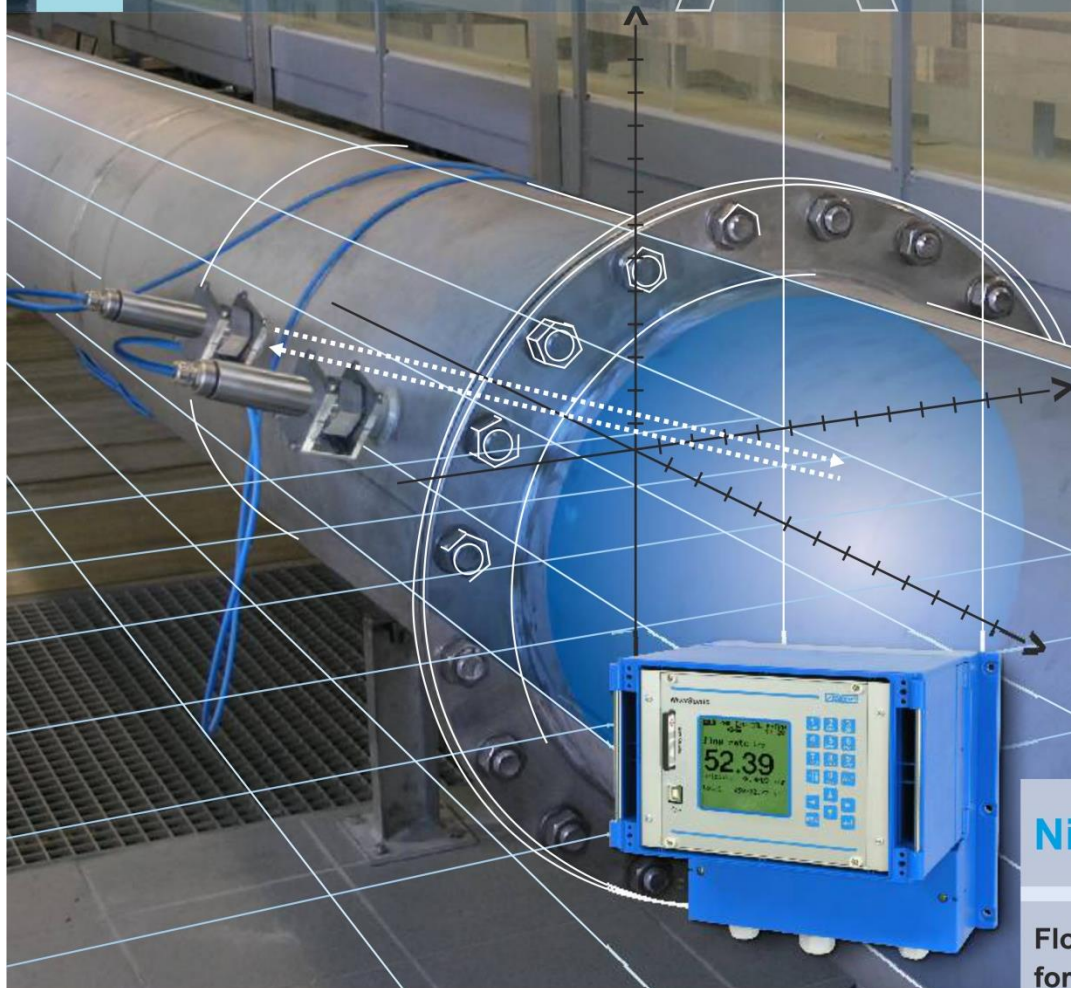
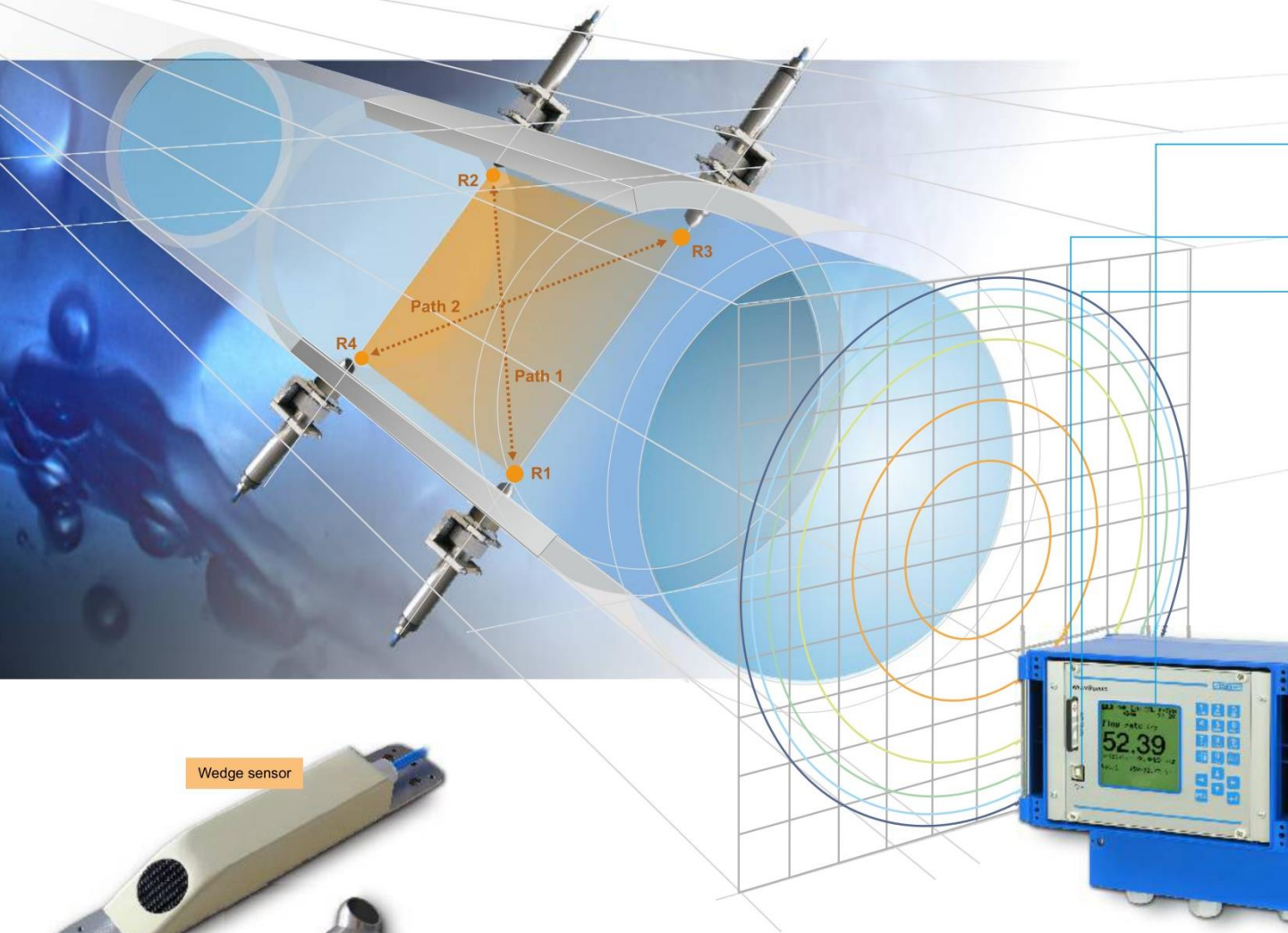


NIVUSONIC



NivuSonic
Flow Measurement
for full Pipes with
Transit Time
@ Internet Access

How, where, how much? A constant flow of information!



Wedge sensor



Pipe sensor



The NivuSonic is a permanent measurement system for continuous flow measurement in a range from clear to polluted media of various consistencies.

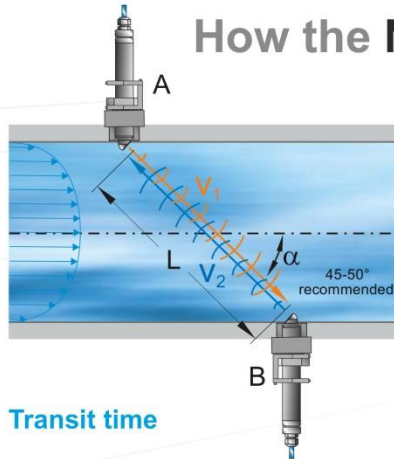
The NivuSonic utilises the transit time method. In contrast to other measurement methods (e.g. leading edge) transit time determination using signal correlation ensures increased operational reliability. Measurements can be implemented even in heavily polluted media at a constant level of accuracy.

NivuSonic has been developed to be a cost effective solution for measurements in full pipes. Using 2 measurement paths, the unit provides very accurate results at fully developed flow profiles in pipes. Appropriate sensors can be installed even during operation at low installation costs.



- ultrasonic transit time measurement with up to 2 measurement paths
- measurement in a range of clear to heavily polluted water
- measurement in full pipes
- easy and multilingual programming in dialog mode
- large, back-lit graphic display
- storage of all measurement data on compact flash card
- worldwide communication
- online connection/data transmission and remote maintenance via Internet
- a distance of up to 300 m between sensor and transmitter is possible by using an adapter box

How the NivuSonic measures



Operation

The NivuSonic consistently follows the intelligent dialog mode operation philosophy known from other NIVUS units. It is very easy to put the system into operation since the large graphic display and the menu structure are clearly laid out for the various applications.

Transit time

The NivuSonic measurement principle is based on detecting the transit time of ultrasonic signals between two sensors (A and B). The transit time in flow direction t_1 is shorter than it is against the flow direction t_2 . The difference between both transit times is proportional to the average flow velocity along the measurement path v_m .

$$v_m = \frac{c^2}{2 \cdot L \cdot \cos \alpha} \cdot \left(\frac{1}{t_1} - \frac{1}{t_2} \right)$$

c = velocity of sound
 t_1 = time from A to B, t_2 = time from B to A

The system calculates the average cross-sectional area velocity v_A from the path velocity v_m and indicates it directly on the display.

Flow in full pipes is going to be calculated by using the general equation of continuity:

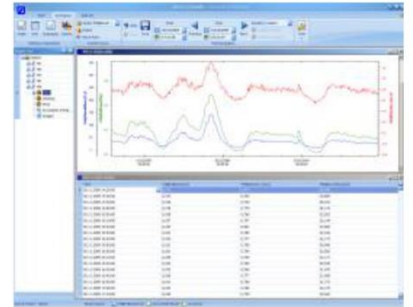
$$Q = A \cdot v_A$$

A = cross-sectional area

v_A = average flow velocity in cross-sectional area

Evaluation

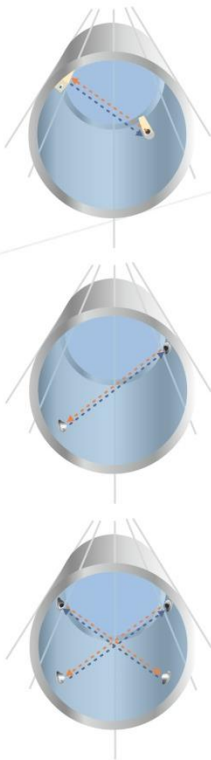
The further processing of data is carried out using the NIVUS standard software NivuSoft.



Communication

In order to meet the requirements of state-of-the-art measurement systems, the NivuSonic provides communication options for remote maintenance, remote diagnostics and data transfer using various communication channels under www.nivus.com

- Measurement online
- Internet Portal D2W - Device to Web



Direct flow rate indication on the display.



Easy parameter setting due to clear program structure.



D2W Internet Portal - data management with many possibilities

