

ADVANCED ULTRASONIC WATER METERS

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Introduction of SEMPAL

- The SEMPAL company was set up in 1992
- We develop and manufacture the multifunctional ultrasonic flow meters, temperature controllers, as well as other applicable devices and software
- SEMPAL Quality System is certified under ISO 9001:2000.
- SEMPAL trademark has been registered in 42 countries.



Gold medal of Foundation
"Excellence in business
practice"
Geneva, Switzerland



Gold award "Business
Initiative Directions",
New York, USA



Mark of quality confor-
mance to requirements of
Total Quality Management
QC100, New York, USA

SEMPAL[®]

WATER SUPPLY

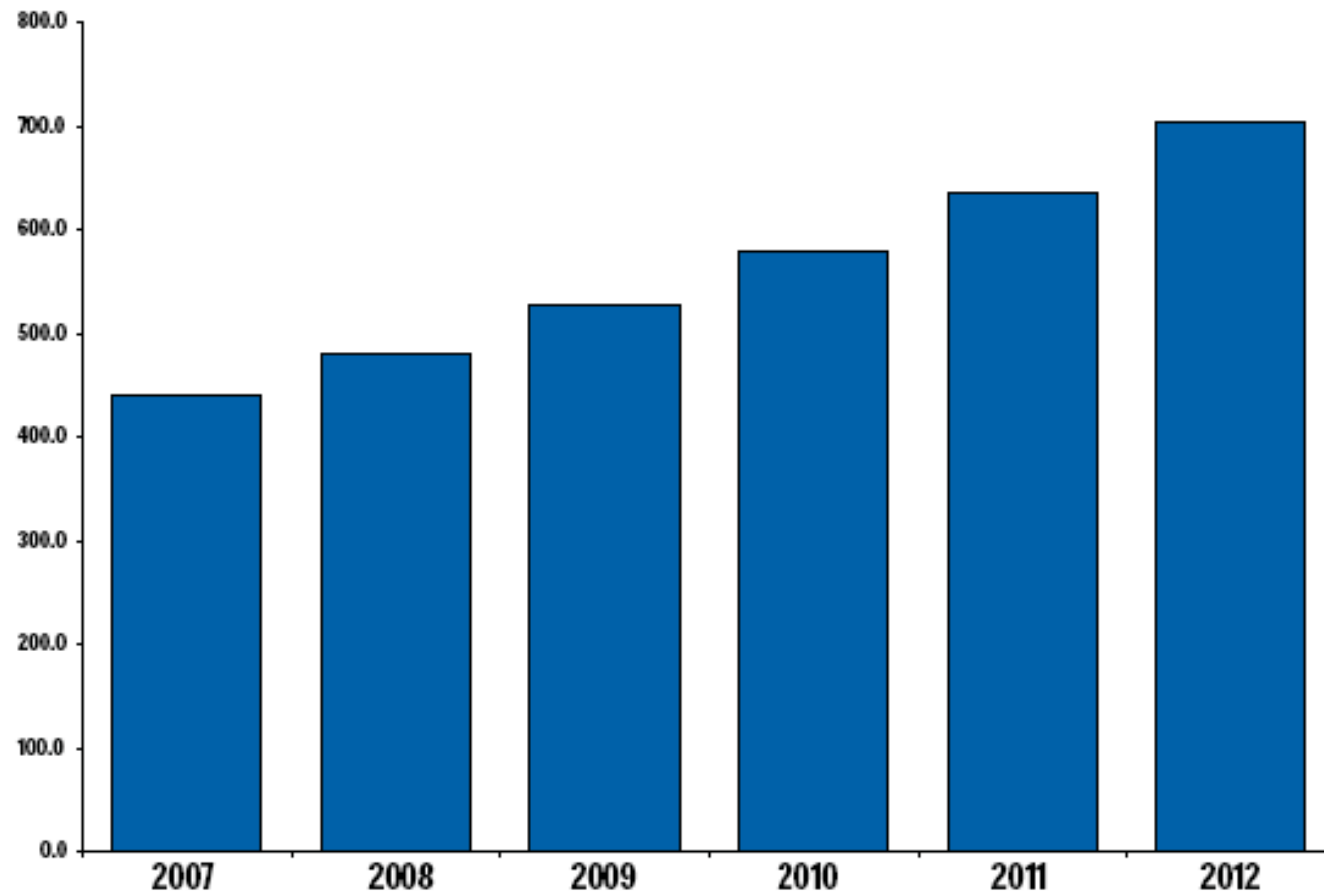
- Water supply in countries of Gulf region relies on water desalination and fossil water
- Water supply is usually not metered neither at the source nor the distribution point
- A large proportion of the population is dependent on supply through water tankers
- Water conservation measures are very important

Meters in water distribution

	Turbine	Electromagnetic	Ultrasonic
Cost	Low	Average	high
Accuracy	Average/high	high	high
Size (ND)	Small	Average/large	Average/large/ small
Calibration	frequent	frequent	in site
Installation	Costly (overspeed, air, calibration)	average	average
Maintenance	Frequent	Nor frequent but expens.	Easy and average cost
Main uses	Comsumption points	Large Pipes, transport and control	Large Pipes, transport and control
Power supply	No	Yes, high power	Yes, low power

Small DN < 300mm; Average 300<DN<800; Large DN>800mm

Projected Revenue Growth for Ultrasonic Flowmeters Worldwide (Millions of Dollars)



Source: Flow Research, Inc.

Why Ultrasonic : advantages

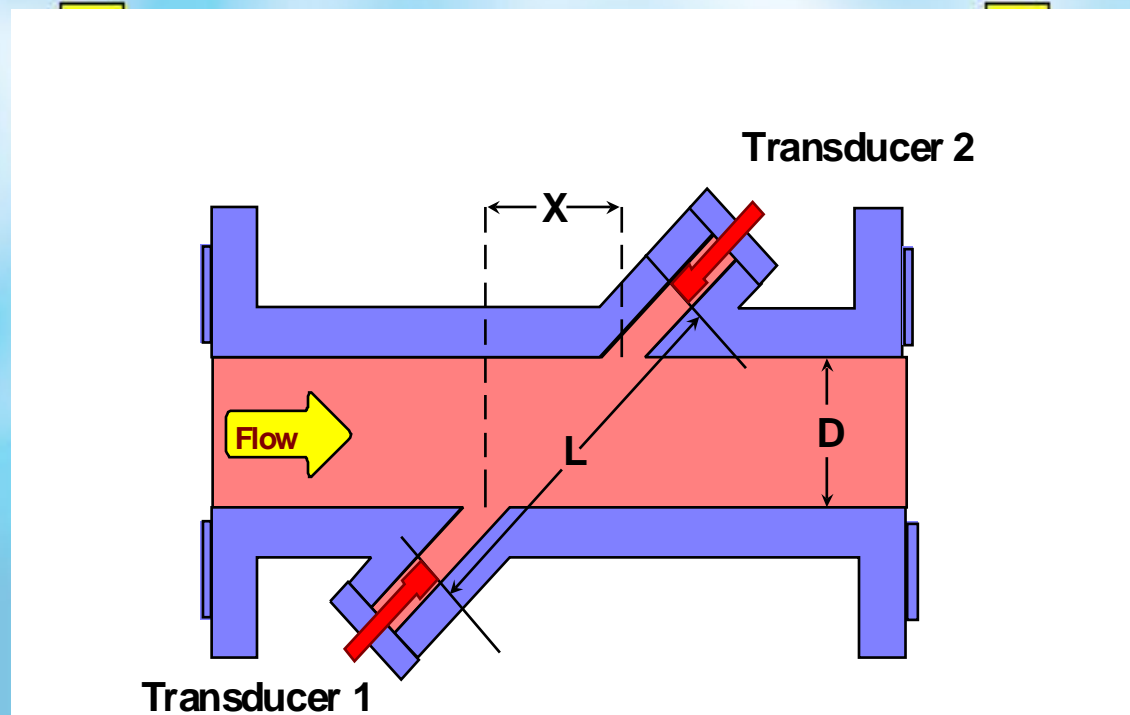
- *Easy to install*
- *Low power consumption*
- *Easy maintenance*
- *Diagnostics*
- *Frequent calibration is not necessary*
- *In site calibration*
- *Can be used on pipes as large as 42 inches*
- *Wide turndown ratio (100:1)*

WHY ULTRASONIC (MEASURING PRINCIPLE)

$$V = \frac{L (T_{up} - T_{down})}{2 (T_{up} \times T_{down}) \cos \theta}$$

$$T_{up} = \frac{L}{C - (V \cos \theta)}$$

$$T_{down} = \frac{L}{C + (V \cos \theta)}$$



Where:

L = Path Length

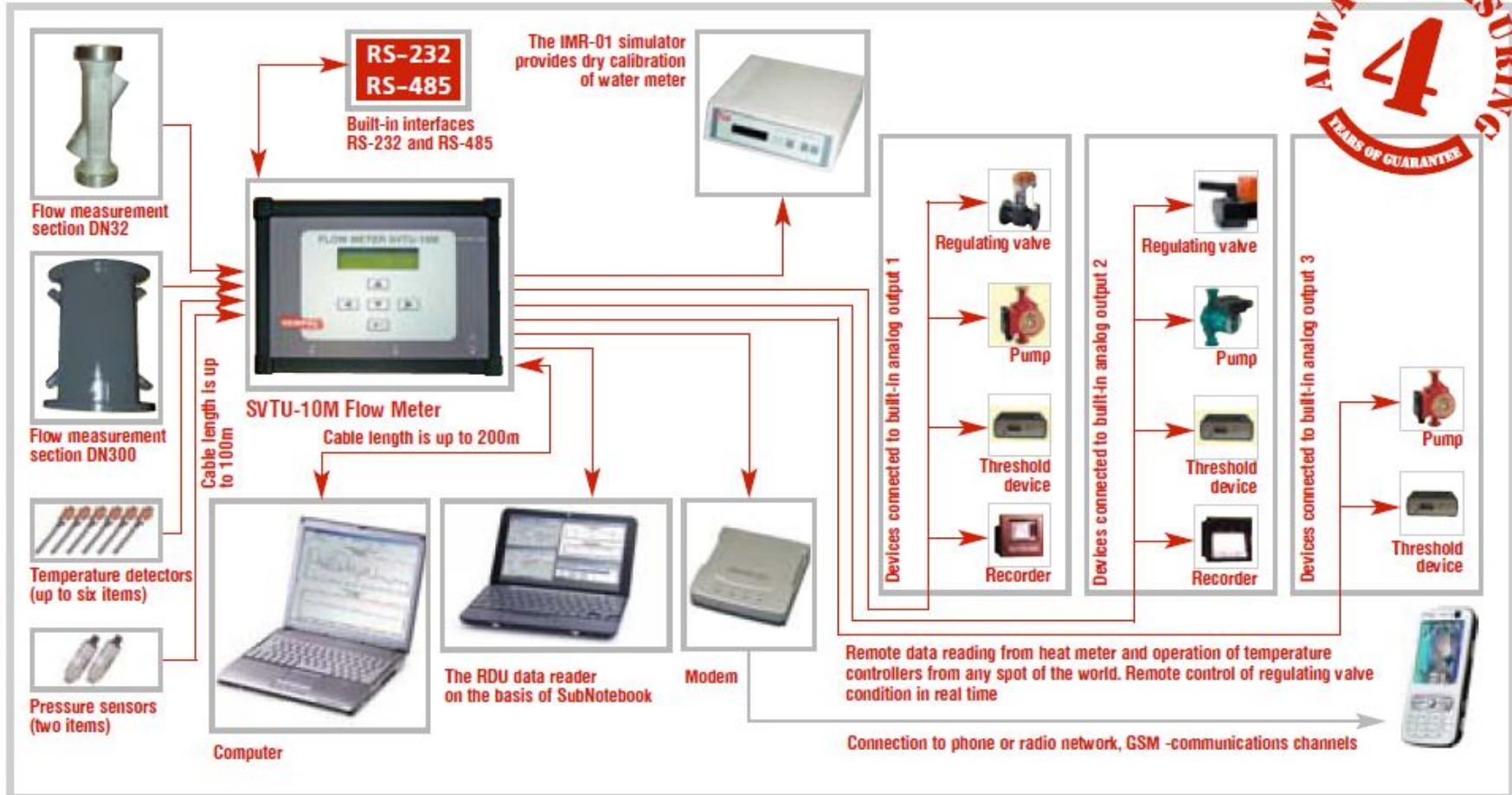
C = Speed of Sound in the fluid

θ = Angle of sound path to the pipe axis

V = Average velocity along the pipe axis

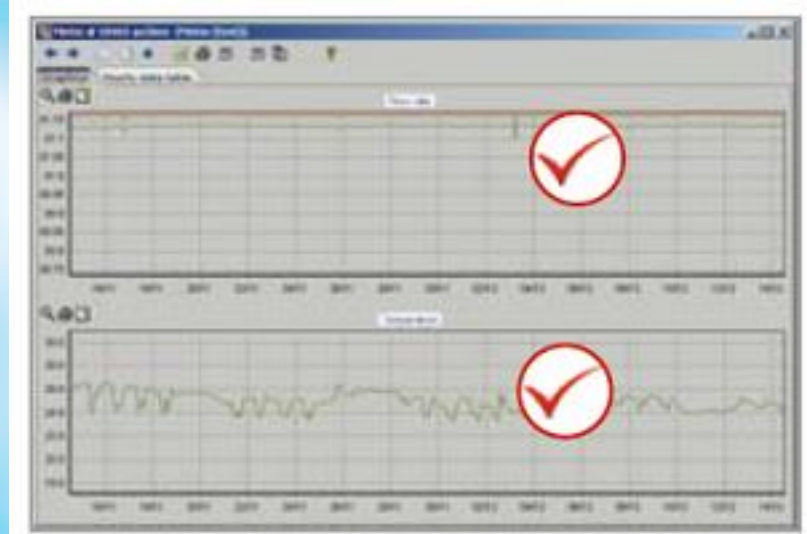
WHY ULTRASONIC (COMMUNICATIONS)

Connection scheme of the SVTU-10M Flow Meter



WHY ULTRASONIC (DIAGNOSTICS)

- **Reduces Start-Up Time**
 - Flowmeter can be configured with software
- **Improves uptime**
 - Real-time data
 - Comprehensive meter health diagnostics
- **Enhanced Features**
 - Velocity of Sound tracking
 - Real-time Flow Profile Monitoring
- **Remote Communication**
 - Allows faster troubleshooting and reduced downtime



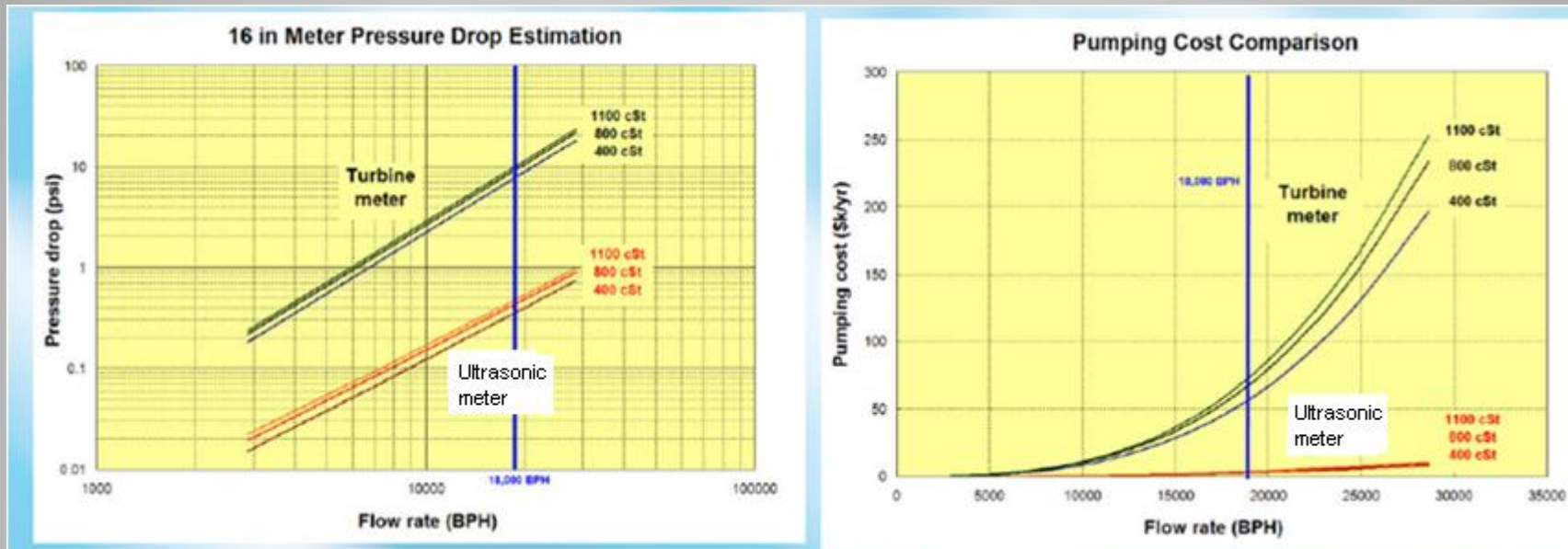
The screenshot shows a data table from the 'Sempal Device Manager' software. The table has multiple columns and rows of data. There are two red checkmarks over the table.

Windows SEMPAL Device Manager Software

SEMPAL Device Manager provides for the following opportunities:

- ✓ Connection to any SVTU-10M or SVTU-11B without directly visiting a site where the meter is installed;
- ✓ Total temperature and flow rate control for all flow meters;
- ✓ The ability to set and change remotely daily and hourly regulation programs parameters for built-in regulators in SVTU-10M meters;
- ✓ The ability to collect and printout any archive data stored in meters including the information about installation site;
- ✓ Automatic archive data reading for a fixed time interval from any SVTU-10M or SVTU-11B;
- ✓ Transferring archive data stored in the portable RDU-02 Data Reader.

WHY ULTRASONIC (PRESSURE DROP)



Very low pressure drop allows customers to maintain low pumping costs

WHY ULTRASONIC (MAINTENANCE)



- No moving parts
- Easy maintenance – takes 2 minutes to replace a transducer
- Transducers are individually calibrated at the factory and no meter recalibration is necessary when transducer is replaced
- Transducers are not matched or paired – less cost

WATER USE: Possible installations of water meters

Industry



- *Power plants (hydro and thermal)*

Water Stations



- *Water works companies*
- *Rough water and sewage*
- *Irrigation*

Housing, Office and Public Buildings

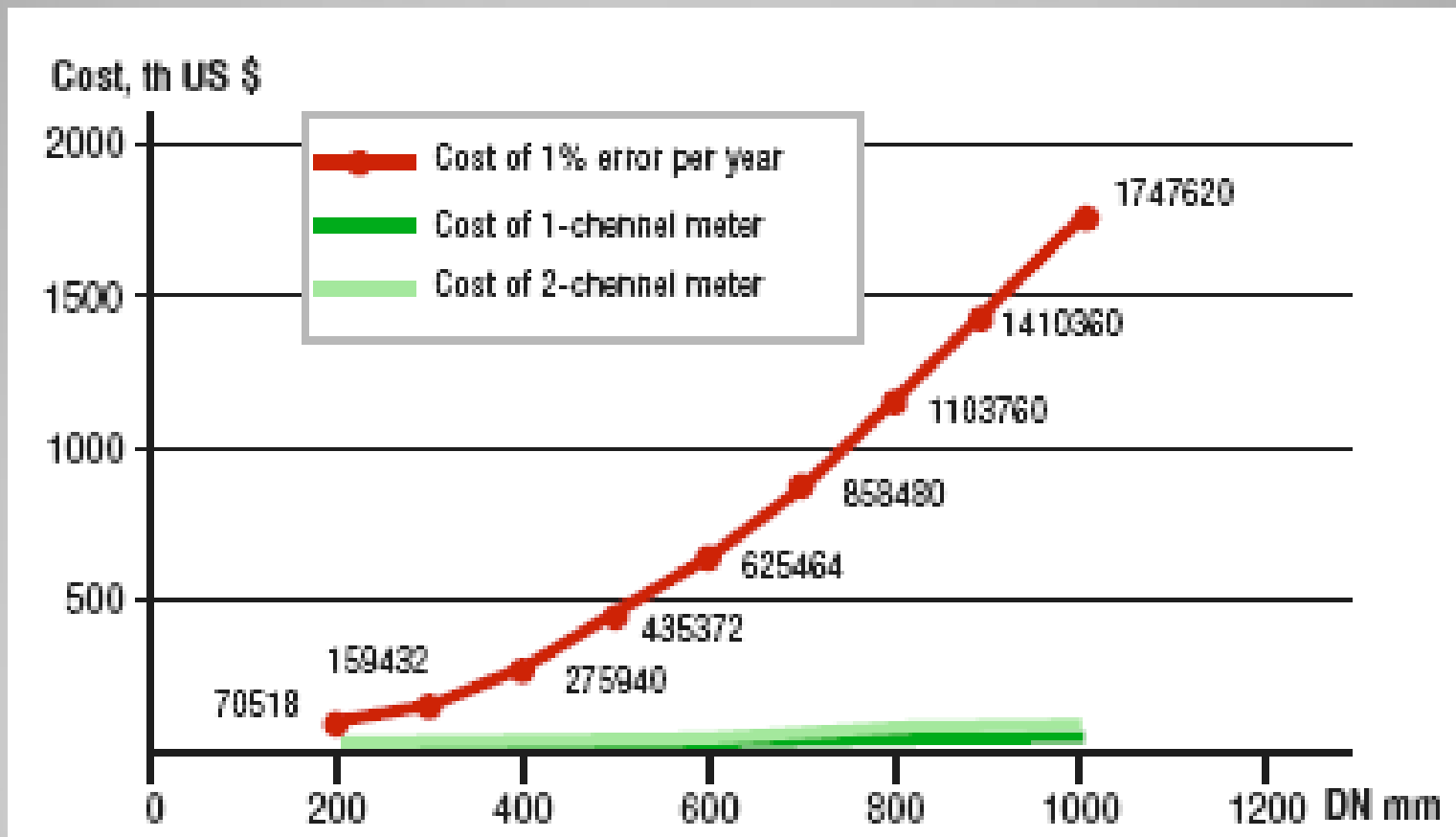


- *Municipal drinking water*
- *Systems for water consumption control and regulation*

WHY ULTRASONIC: Large meter installation



Cost of 1% error of water volume measurement in large pipes per year comparing to costs of 1-channel and 2-channel ultrasonic flow meters



When specifying new flow measurement equipment, end-users have come to realize that it is more important to look at total cost of ownership rather than just purchase price.

MAIN PRODUCTS



Water flow meter SVTU-10 (5M)



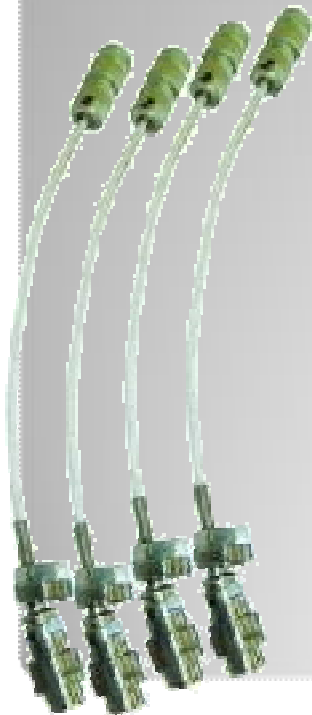
Water flow meter SVTU-10 M



Temperature regulator RT-10



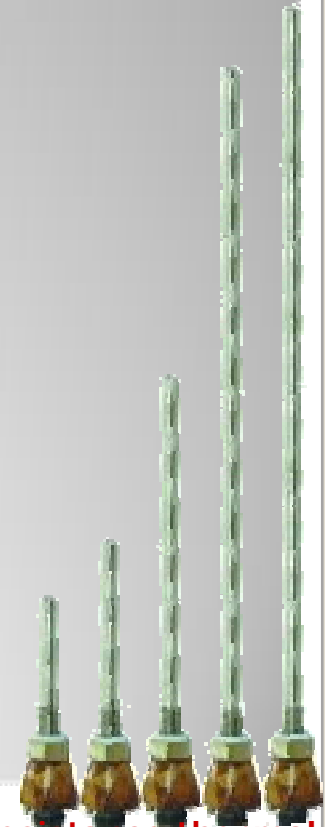
Water flow meter SVTU-11B



Flow sensors



Flow measuring sections (DN-20...DN-1200)



Resistance thermal converters RTC-C (L = 58, 80, 150, 310, 360 mm)

AND FINALY

WHY WE NEED TO MEASURE WATER?

**Because if we can measure it we can
manage it**

Thank you for attention!