

OPEN CHANNEL FLOWMETERS



Calculation of flowrate from :

UF 322 CO-S : 1 - 2 velocity measurements (chords)
UF 322 CO : up to 6 ultrasonic chords

- ✓ velocity integrated on each chord
- ✓ large choice of probes and supports
- ✓ useable in any kind of section
- ✓ no hydraulic calibration
- ✓ static probes with no maintenance
- ✓ bi-directional flow measurements
- ✓ user friendly converter and software
- ✓ complete remote processing

Advantages

- insensitivity to downstream blockages
 - large range of flowrates can be measured
 - part filled to surcharge conditions measureable
 - limited civil work required
- ✓ converter can be sited up to 500 m from probes

Typical applications

- sewage networks : wastewater / rainwater
 - inflow-discharge from sewage works
 - irrigation channels
 - rivers up to approx.10 m width
- ✓ available for hazardous area (Ex)

Represented by :

Ultratix

Ultrasonic Measurements



OPERATING PRINCIPLE

To measure the flow of free-surface, open channels, rivers... a combination of velocity and level measurements are required. The **UF 322** range uses transit-time ultrasonic principle to measure velocity.

The **UF 322 co-s** and **UF 322 co** measure the flowrate by integrating the hydraulic profile from 2 to 6 velocity chords :

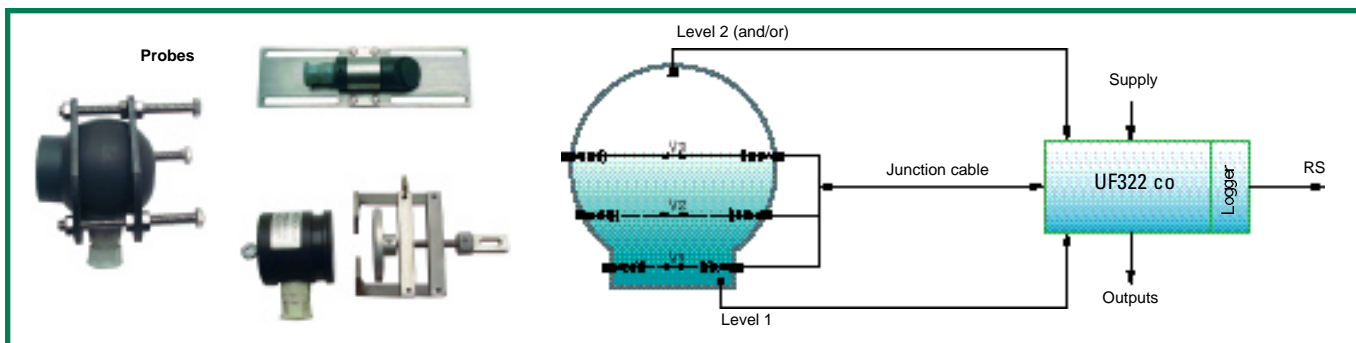
$$Q = \sum_{i=1}^{20} S_i v_i$$

PERFORMANCE

- Accuracy on velocity measurement < +/- 0.5 %
- Accuracy on level acquisition < 0.1 % (excluding errors of level device)
- Accuracy of section description < 0.25 %
- Typical accuracy of flow calculation : 1 to 5 % according to application and number of chords
- Maximum length of channel : according to the frequency of probes (0.5 MHz and more)
- Calculation of flowrate by programmable rule : Flow = f (Level) when all probes are out of flow

FEATURES

- Graphical display of readings and curves
- Easy to use keypad steps through set up windows
- Diagnostic screen shows : Echo display, gain ...
- Language choice : English, French, German, Spanish, Italian...
- 8 site set-ups can be stored in memory
- Software for PC / Windows NT, 95, 98
- Date, time data logger
 - . 8 064 lines of 4 variables (32 400 in option) or
 - . 4 032 lines of 9 variables (16 200 in option)
- Direct transfer of data to spreadsheet
- Display : flow, velocity, level, volume ...
- Isolated programmable current output 4-20 mA
- 3 programmable relays outputs : alarms, faults totalisation...
- Numerical output RS 232 or 485 - JBus/Modbus
- Odd shaped channels can be configured in set-up (in 20 trapezoidal sections)
- Hydraulic model describes in 20 sections :
 - fixed model : absolute mode
 - variable model : relative mode
- Possible acquisition of 2 levels - alarm if different
- Ultrasonic signal processing with DSP (Digital Signal Processing)



ELECTRICAL CHARACTERISTICS

- Power supply (max. consumption : 10 W) :
 - . 230/115 V AC 50/60 Hz
 - . 12 - 32 V DC as standard (option : 50 V)
- Inputs : 2 signals 4-20 mA for level(s)
 - 15 V power supply for piezzo or ultrasonic sensors
 - 2 wires
- Outputs
 - 1 output 4-20 mA isolated - resolution 10⁻⁴
 - 3 static relays outputs 100 V - 100 mA - 10 VA
 - 1 output RS 232 or 485, 300 to 9600 Bauds, JBus/ModBus.

NOTES ON SITE SELECTION

- Performance and results mainly depend on geometric readings, positioning and number of probes.
- Use of Ultraflux probe mounting tools is recommended
- Avoid sites with bubbles or entrained air

MECHANICAL CHARACTERISTICS

- **UF 322** enclosure is cast aluminium - epoxy coated ; all cable entries are via plug type connections
- Protection IP 67 ; Relative humidity : 90 %
- Temperature : - 25° C / + 50° C
- Dimensions : version CO-S : 340 x 240 x 123 mm (H x L x D) version CO : 340 x 240 x 225 mm
- Submergeable probes.

