



8510+ Transit-Time Flowmeter



Model 8510+ Multiple Chordal Transit-Time Flowmeter

The ACCUSONIC® Model 8510+ provides accurate, reliable flow measurement for applications ranging from full and partially full pipes, to open channels, canals, and waterways. The 8510+ has the ability to measure up to 10 acoustic paths in the same measurement section, assuring superior performance even in the presence of severely distorted flow conditions. Additionally, the 8510+ can measure flow in up to 5 separate pipes and/or channels simultaneously.

About ACCUSONIC

ACCUSONIC®, a brand of ADS® LLC, designs and manufactures multi-path transit-time flow measurement systems, which are renowned for their precise accuracy and reliability in difficult operating environments.

ACCUSONIC flowmeters can be found in hydroelectric and thermal power plants, water and wastewater treatment facilities, sewage collection systems, and other types of water conveyance pipelines and channels.

Since 1967, ACCUSONIC has installed thousands of systems worldwide, and offers a full range of services including installation and startup, system verification, turbine performance testing services, and field training.

Typical Industries Include

- Hydropower
- Thermal Power
- Water Treatment and Transport
- Wastewater Treatment, Collection Systems, and CSOs
- Irrigation and Waterways

Unique Features

Flexibility: Measurable pipe and channel sizes can range from 8 inches (200 mm) to 600 feet (180 m). This versatility allows customers to utilize one flowmeter technology for a wide variety of applications, thus providing a common platform for maintenance, inventory, and training.

Accuracy: Utilizing multiple chordal path transit-time technology, the 8510+ provides accurate flow measurement ($\pm 0.5\%$ for full pipes and $\pm 1.0\%$ for partially full pipes and open channels) even in the presence of flow profile distortions and cross flow. No other flow measurement technology can offer this level of performance over the range of pipe/channel sizes and under such challenging operating conditions.

Economy: The 8510+ is configurable to measure up to 5 separate pipes and/or channels simultaneously, thus significantly reducing the cost per measurement. This feature, combined with the meter's high performance and minimal maintenance requirements, provides the 8510+ with a lower cost of ownership and greater value than comparable flow measurement technologies.

APPLICATIONS

Hydropower Flow Monitoring in Penstocks and Low-Head Intakes

Wastewater/CSO and Collection System Monitoring for NPDES regulations

Pump and Generate Flow Monitoring for Pumped Storage Plants

Precision Flow Measurement for Turbine Efficiency Testing (meets ASME PTC 18 and IEC 60041 codes)

Water Supply and Transmission Flow Monitoring

Water Distribution and Revenue Metering

Pump and Irrigation Flow Control

SYSTEM ADVANTAGES

Multiple-Pipe Flow Measurements from a Single Console

High Performance Flow Measurement Under "Real-World" Conditions

Minimal Flowstream Intrusion, No Head Loss

Bi-Directional Flow Measurement Capability

Modbus Interfaces, (TCP/IP, RS-232, and RS-485) for SCADA Applications

BENEFITS

Improve and Document Hydro Unit Performance

Ensure Unit Power Output Meets Specifications

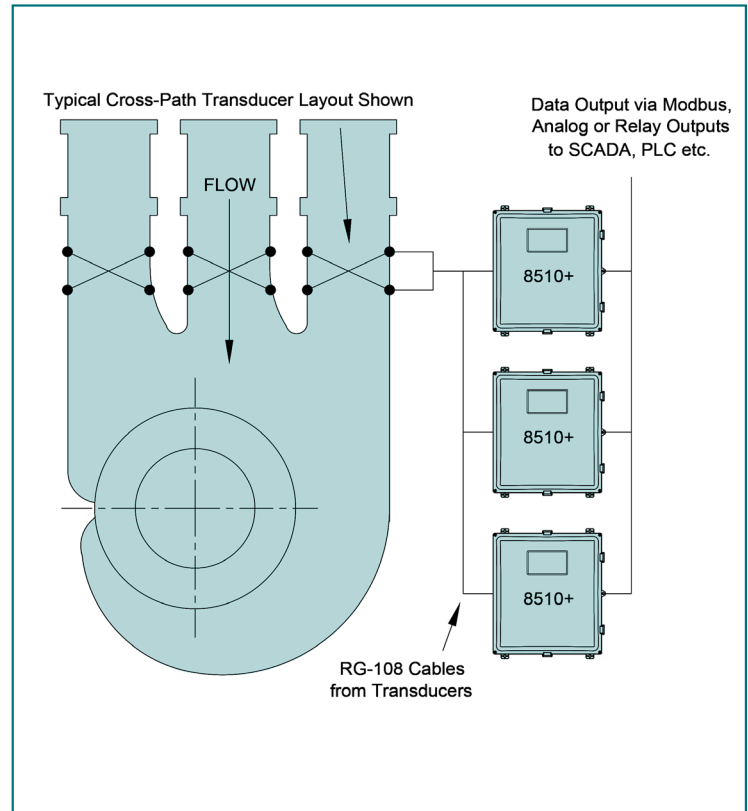
Balance Hydro Unit Allocation Dispatch

Document Water Resource Utilization Compliance

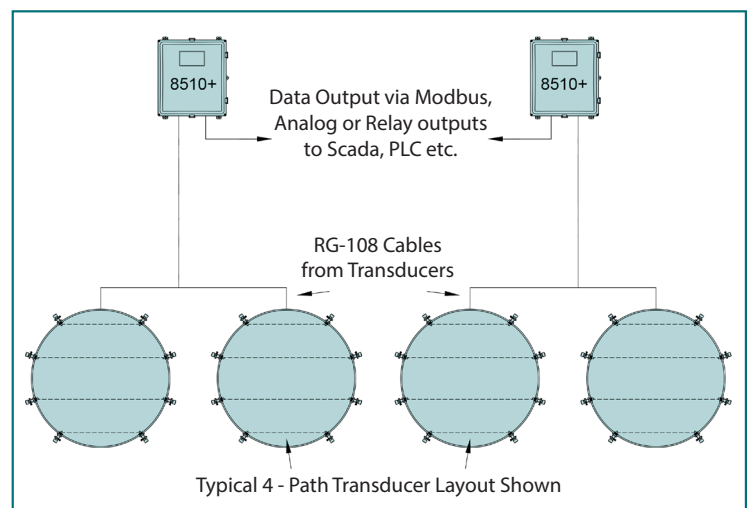
Improve Plant and Unit Efficiency

Accurate Control and Revenue Billing

Reliable Chemical Pacing and UV Disinfection



Hydropower Low-Head Intakes

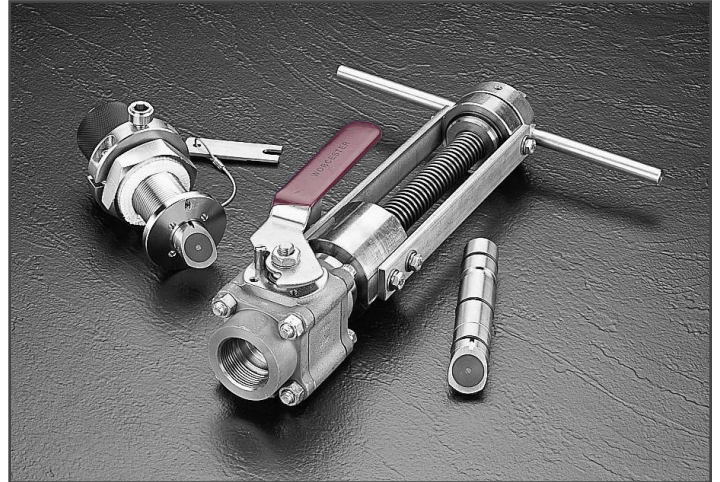


Multiple Pipe Monitoring with Remote Accusonic Flowmeters

SYSTEM CONFIGURATIONS

Accusonic flowmeters may be configured for a wide variety of applications, including flow measurements in exposed or buried pipes, penstocks, flow conduits, intake structures, irregular shaped pipes and channels, tunnels or open channels.

Accusonic has developed specialized transducers to meet virtually any installation requirement.



Model 7601/7641 Feedthrough Transducers

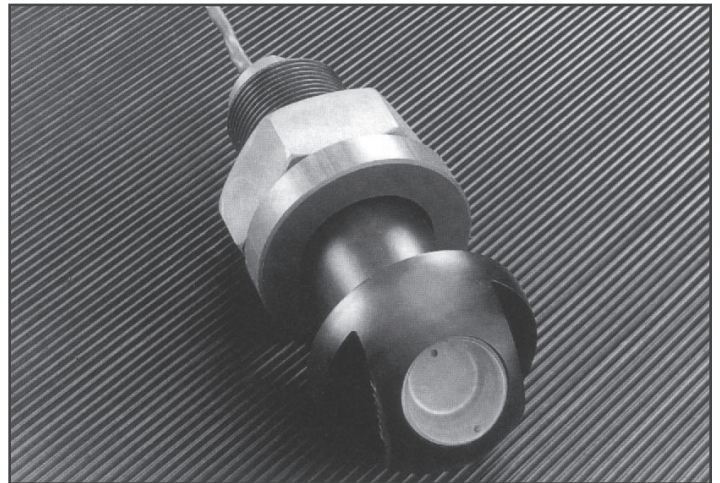
TRANSDUCER OPTIONS

Fully Removable and Fixed Window Transducers for Exposed Steel Pipes

Internal-Mount and Array-Mount Transducers for Buried Concrete Pipes and Conduits

'Cold Tap' or 'Hot Tap' Transducers for Pipes with External Access Only

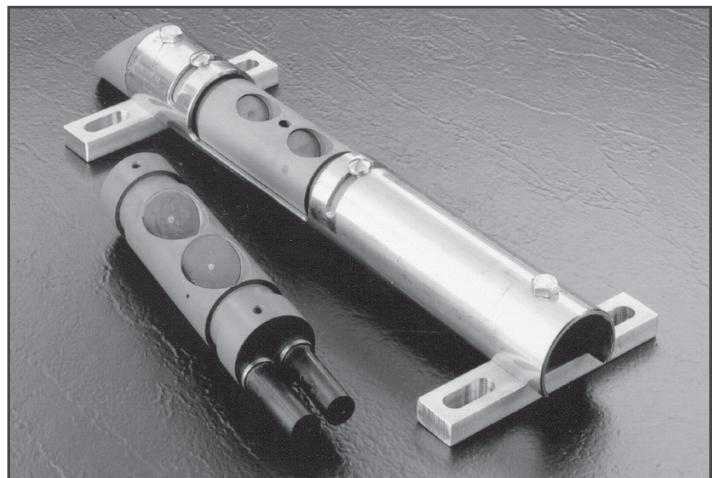
Dual Element Transducers for Redundancy in Hard to Access Locations



Model 7625/7605 Fixed Window Transducers



Model 7658 Internal Mount Transducers



Model 7634 Dual-Element Internal Mount Transducers

ACCUSONIC®

8510+ Flowmeter Specifications



Measurement Options	Open/closed channel
	Pipe flowing full
	Pipe flowing partially full to surcharged
Number of Acoustic Paths	1 – 10
	**Note: The total number of acoustic paths in all pipes and channels cannot exceed 10 for a single console.
Number of Pipes or Channels	1 - 5
	**Note: The total number of acoustic paths in all pipes and channels cannot exceed 10 for a single console.
Accuracy	± 0.5% of rate for full pipes (typical with 4 paths)
	± 1-2% of rate for partially full pipes or open channels (typical with 4 submerged paths)
Outputs	(4) or (8) Isolated analog 4–20 mA with 750 ohm max resistance load
	Optional (6) relay outputs 7.0 A @ 110 VAC or 5.0 A @ 24 VDC
	Modbus (RTU Mode) via RS-232, RS-485 and TCP/IP
Inputs	(4) or (8) Analog 4-20 mA, 100 ohm load resistance
	24 VDC loop power is available
Local Display	7.7" LCD touchscreen color display with LINUX CE operating system
Software Interface	AccuFlow™ Windows-based software utility allows for easy setup and configuration via customer-supplied PC
Internal Datalogger	16 GB internal storage of measured and calculated variables or via USB flash drive (not included)

Diagnostic Information

Signal travel times

Sonic velocity

Signal gains

Signal to noise ratio

Error messages

Power Requirement

90 - 250 VAC, 47-65 HZ or 100 - 300 VDC

24 VDC (optional, for non-IS consoles)

26 to 35 watts power consumption (200 watts with optional heater)

Console Enclosure

NEMA 4X (IP66) wall mounted; polycarbonate with UV protection (F1)

18" h x 16" w x 10" d
(457 x 406 x 254 mm) Inside

19.4" h x 18.7" w x 11.9" d
(493 x 475 x 302 mm)

30 lb. (14 kg)

Environmental Conditions

(Storage: 0 to 150 deg. F (-18 to 65 deg. C); 0 to 95% RH

Operation: -4 to 158 deg. F (-20 to 70 deg. C); 0 to 95% RH

Operational range can be increased with optional heater to: -15 to 158 deg. F (-26 to 70 deg. C)

Hazardous Area Requirements

Optional console for Class 1, Divisions 1 & 2, Groups C & D applications. Mounted outside of classified area.

Learn more about ACCUSONIC at www.ACCUSONIC.com
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ACCUSONIC®
is a brand of **ADS**