Electronic water meters

Accusonic 8510+

The Accusonic 8510+ Series Flowmeter is a modular metering system for the measurement of water flow in full pipes, partially filled pipes and open channels.

The following requirements do not replace the Accusonic 8510+ Series Flowmeter Technical Reference Manual. The technical manual is essential for the successful installation, operation and maintenance of this device and must always be used.

However, for use of this meter under this module of the standard the following requirements must be met, as a minimum, and have been formulated from recommendations/advice in manufacturer literature and where required with input from the manufacturer.

Requirements to be confirmed by validation type	
Post-installation (new meter installation) **Existing meter installation – new controller and new transducers/sensors installed**	Table 2 applies – Full pipe meters larger than 600 millimetres only Section 2.0 and Section 3.0
Ongoing (revalidation) or Faulty meter (maintenance) – existing meter installation – new or replacement transducers/sensors only and no new controller	Section 2.0 and Section 3.0
Ongoing (revalidation) or Faulty meter (maintenance) – existing meter installation – new controller and no new transducers/sensors **Ongoing (revalidation) or Faulty meter (maintenance) – existing meter installation – no new transducers/sensors and no new controller**	Section 2.0

1.0 Key terms

Term	Definition
8510+	The controller operates the transducers, measures the travel times between the transducers and calculates the volume of water passing through the meter. It is a modular metering system.
CPH	An Australian Hydrographers Association, Certified Practicing Hydrographer. A list can be found here: Certified Professionals - Australian Hydrographers Association (aha.net.au)
CPH_M	A CPH that has also completed the Meter Installation and Validation course by Irrigation Australia Ltd and is qualified as a Certified Meter Installer and Validator
Controller	The logger/brains of the 8510+.
Transducers	Retrofit acoustic flow transducers

2.0 Authorised Meter Validator

From 1 December 2022, an authorised meter validator must have completed training with ACCUSONIC for the 8510+, within the previous 2 years to perform the activities in the following table. The training record/certificate must be provided with the validation certificate where new transducers are installed. This training is essential to achieve the uncertainties published by ACCUSONIC under different operating conditions.

Requirements for	AMV		Training by ACCUSONIC
	Full pipe Partially filled pipe	Open channel	
Fit-for-purpose use of 8510+	CMI	CPH_M[#]	✓
Number of primary acoustic paths (including crossed paths, where required)	CMI	CPH_M[#]	✓
Upstream and downstream lengths	CMI	CPH_M[#]	✓
New transducer selection, installation, and position uncertainty – path length – path angle **Diameter, for round pipe** **Geometry - partially filled pipe / open channel**	CMI	CPH_M[#]	✓
Power supply	CMI	CPH_M[#]	✓
System calibration	CMI	CPH_M[#]	✓
Configuration – user defined parameters	CMI	CPH_M[#]	✓
Data output	CMI	CPH_M[#]	✓
Maintenance	CMI	CPH_M[#]	✓

[#] See Section 2.1 below.

2.1 Open channel

Until 1 December 2022, the relevant person must:

- engage a CPH[#]
- nominate their CPH for appointment by the chief executive as an authorised meter validator under s109 of the Water Regulation, for their 8510+.

[#]The CPH is engaged to complete corrective and preventive maintenance, the installation of new transducers and depth sensors, and validation for their 8510+.

From 1 December 2022, the relevant person must:

- engage a CPH_M[##].
- nominate their CPH_M for appointment by the chief executive as an authorised meter validator under s109 of the Water Regulation, for their 8510+.

[##]The CPHM is engaged to complete corrective and preventive maintenance, the installation of new transducers and depth sensors, and validation for their 8510+.

3.0 Measurement assurance requirement B

3.1 Transducers

The installation of new transducers must be in accordance with ACCUSONIC procedures and must be completed by authorised meter validators trained by ACCUSONIC.

To ensure uncertainty specifications published by ACCUSONIC are met, the following attributes must be determined according to ACCUSONIC procedures:

- confirming fit-for-purpose
- confirming upstream and downstream lengths
- transducer selection and installation
  - path length measurement
  - path angle measurement
- for round pipe, diameter measurement
- for non-round pipe or irregular shaped pipe, and open channels, geometry measurement
- configuration - user defined parameters.

Confirmation that the attributes above have been determined in accordance with ACCUSONIC procedures, must be provided with the validation certificate. For example, provision of training record/certificate issued by ACCUSONIC (within the previous 2 years).

3.2 Depth sensor

New depth sensors must be calibrated after manufacture and prior to installation, and the manufacturer must certify that the sensor will measure depth within ±0.25% of true value across the depth range.

The new sensor must be provided with a calibration certificate showing the:

- date of the calibration test
- serial number of the reference device
- sensor type, manufacturer part number, and the serial number for the sensor
- depth range over which the sensor was tested
- calibration coefficients i.e., slope and offset, or, that the sensor has ‘passed’ the test.