

Trade Waste Discharge Flow Meters

Trade Waste Fact Sheet No. 12

INTRODUCTION

Businesses generating trade waste may be required (as a condition in their trade waste discharge permit) to install an effluent flow meter downstream of trade waste discharge. This provides accurate information regarding the rate, and volume of discharge to sewer. In addition, the meter(s) must have outputs capable of activating a flow-paced sampling device or data logging device. The following information sets out specific requirements and recommendations for these installations.

METER TYPE

While other methods might be considered by SA Water in certain circumstances such as partially filled pipes or channels, the preferred option is measurement of full-pipe flow with an electromagnetic flowmeter. They are most easily installed in pumped discharge lines. However, these meters may also be used in gravity discharge pipes, providing suitable bends are used upstream and downstream of the meter to give an "invert" section that remains full at all times.

Meters having mechanical devices driven by the flow, and electromagnetic flow probes are generally not acceptable for measuring trade waste.

METER SPECIFICATIONS

Accuracy: Plus or minus 2% across the range of actual flow rate at the lowest typical flows when measuring trade waste. Where the meter measures combined trade waste and sewage flows, an accuracy of plus or minus 5% is acceptable.

Power Supply: Dedicated uninterruptible power supply (UPS).

Totaliser: A flow volume totalising function, with a visual display in kilolitres (minimum six digits). NO external reset. The totaliser must be capable of retaining its reading in the event of a power failure.

Flow Rate: Instantaneous flow rate function, with a visual display in litres per second (to one decimal place).

Output pulse signal: Voltage free (isolated) contact closure of minimum 50 millisecond duration. Set to give one (1) pulse every 100 litres of flow, unless otherwise directed by SA Water.

Output analogue signal: 0 - 5 volts DC or 4 – 20 milliamps output, which is directly proportional to flow rate.

External output connector: "Amphenol" 6-pin socket type (part number MS 3102E14S-6P) with dust cap (part number MS 25043-14).

Revised February 2011

Further information

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Wiring to external output connector:

Pin A + Pulse output
Pin C - Pulse output
Pin E + Analogue output
Pin F - Analogue output

INSTALLATION

Meter location: The meter is located downstream of the trade waste discharge, or pre-treatment system outlet, but upstream of “domestic” waste water inflows. Actual location of the meter must conform with the manufacturer’s requirements.

Accessibility: The installation should accommodate servicing of the flow meter, as required during its service life. For example;

- providing risers in pipework upstream and downstream of the meter, to give access for in-situ cleaning
- using easily removed backfill for buried meter installations.

Isolating valves: Isolating valves must be installed (for maintenance purposes) unless the discharge is pumped.

No bypass: Pipe work that allows the flow meter to be bypassed is not permitted.

Location of other components: The meter display/control instrumentation should be conveniently located for routine checks and recording of readings and suitably protected from weather and accidental damage.

The output connector must be located within two metres of the trade waste sampling point, to enable connection to an automatic sampling device. The output connector is permanently mounted above ground level to a weatherproof junction box or similar fixture. Flying leads are not acceptable.

COMMISSIONING, CALIBRATION AND MAINTENANCE

The meter must be commissioned at the time of installation by a competent person acceptable to SA Water. Individual trade waste discharge permits specify the frequency of ongoing verification checks. If the meter’s accuracy is in doubt, it shall be calibrated by a NATA registered laboratory. The meter is to be maintained in accordance with the manufacturer’s requirements, although individual site conditions might require more frequent attention.

DATA LOGGING

Logging of flow data will be required in certain circumstances. Data must be accessible by SA Water at all times (including ad-hoc update requests) via SMS command or internet, and be viewable in the form of a trend chart, or downloadable for interpretation in CSV or similar generally useable format without the need for specific proprietary software.

A variety of systems are capable of interacting with the flow meter to provide this capability. Recorded data is automatically downloaded to data storage and retained for a minimum of two years.

SA Water may also require logging of other parameters, such as pH, conductivity and temperature. Sending alarms by SMS to designated parties when the acceptable range is exceeded may also be required. Where this is a requirement, a multi-channel device would normally be used.

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